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Facts and Observations respecting Intermittent Fevers, and the Exhalations which occasion them. By Sir GILBERT BLANE, Bart. M.D. F. R. S. Physician in ordinary to the Prince Regent.

[From the Medico-Chirurgical Transactions, Vol. III.]

HAVING been sent by the government of this country on a special mission to the Island of Walcheren, in the autumn of the year 1809, in order to ascertain the nature and causes of the great sickness and mortality prevailing in the British army in Zealand, and to make a report of my enquiries: having been also sent by the Admiralty to Northfleet, in the autumn of 1810, in order to investigate the nature and situation of that spot in point of health, with a view to decide, whether any objection in point of unhealthfulness would arise to the formation of a projected dock-yard, and other naval establishments at that place, some observations have occurred to me in executing these duties, which appeared to me sufficiently interesting to be laid before this Society.

During my residence in Walcheren, I not only visited all

the hospitals, but inspected, with the permission of the Commander in Chief, the whole returns of the army from the time of their disembarkation, in order to ascertain the progress and extent of the sickness and mortality. The result of these enquiries is what I now propose to communicate, and, in describing the nature, and detailing the ravages of the prevailing disorder, I shall borrow the greater part of what I have to say, from my official communications.

I arrived in the island on the 30th of September, and remained till the 13th of October following. During my stay I stated to the government, that I found so great a proportion of the sick to consist of those affected with the intermitting and remitting fevers peculiar to marshy countries, that there could be no doubt that the sickness of the army was owing to that cause.

The fever commonly called typhus, with which armies in ordinary circumstances are chiefly affected, had been rare, and dysentery, which, in the history of former campaigns* in the Low Countries, proved so severe a scourge to our armies in the autumnal months, had been as yet but little felt. Both these diseases, however, had begun to show themselves at Flushing, where the accommodations were at best far inferior to those at Middleburgh; but were then still more so, in consequence of most of the buildings having been injured by the shot and shells thrown into the town during the siege. In the large and elegant city of Middleburgh, the accommodations were excellent, as we had not only the advantage of the hospitals formerly belonging to the Dutch and French troops, but the spacious and airy warehouses of the Dutch East India Company: this having been formerly the great emporium of Indian commerce. Here I found no typhus nor dysentery, but the prevalence of these two diseases was very remarkable at Flushing, particularly in one regiment, of which all the medical officers were either absent or dead, and of which the sick, originally affected with the endemic disease, were suffering also

* See Sir J. Pringle's Work on the diseases of the army; in which there is a most accurate history of the diseases prevailing in the British armies in Zealand and other parts of the Low Countries.

from typhus and dysentery, in consequence of the want of cleanliness as well as of proper medicines, diet and attendance. This fact affords a proof of the necessity of general hospitals on actual service, as well to prevent the generation and extension of infection, as to afford relief to the regimental establishments, when the sick and wounded accumulate beyond their means of accommodation. It is evident in the present instance, how necessary this is even in stationary service; but with regard to the ordinary service of a campaign, where armies are in motion, and where regimental surgeons and their assistants must be present with the regiments, general hospitals may be regarded as absolutely indispensable. There ought also to be a liberal establishment of medical officers attached to such hospitals in case of emergencies of service, and to fill up such casual vacancies as may occur in regiments.

I found myself under the painful necessity, therefore, of stating, that the sickness on this island did not diminish. It appeared from the latest general weekly return, that there were two thirds of the whole numeral strength of the army incapable of duty. The mortality during the last four weeks had been about 1000. All the battalions were affected nearly in an equal degree; and it does not appear, that their illness was connected with the nature of their duty, or that it was owing to privations or neglect of any kind; for those were equally sickly, who had enjoyed the utmost ease and comfort in cantonments, as those who had been engaged in the siege of Flushing.

Nor was this great sickness imputable to any thing unfavourable in the weather at this season, in comparison of former years. On the contrary, the native inhabitants affirmed, that they were then less sickly than usual at the same season of the year, and they accounted for this, from the uncommon quantity of rain that had fallen the last two months: for they consider it as fully established by observation, that the most sickly years are those, in which there had been great drought and heat in the latter end of summer and the early part of autumn; owing, probably, to the increased exhalation, and the

more concentrated foulness of the stagnant water produced by these causes.

I found upon enquiry, that a like degree of sickness prevailed among the French troops who occupied Flushing during the last seven years; and that in former times, the Dutch troops, from the northern parts of the United Provinces, suffered equally. As the army had not suffered either from the scantiness and bad quality of provisions, nor from want of proper accommodation, nor from hardships and fatigue, it admits of no doubt, that the unfortunate state of the army here, was solely imputable to the contamination of the air from a soil the most productive of deleterious exhalations of any perhaps in Europe, producing an endemic fever which has at all times been particularly severe upon strangers in the autumnal months. I find also upon enquiry, that though this is by far the most sickly season, the residents of this and the neighbouring islands do not enjoy, at any season, the same degree of health as the inhabitants of the more salubrious parts of Europe.

From this statement, it will be clearly perceived, how much the causes of sickness were out of the reach of human control. There were two facts, however, which afforded some encouragement for the employment of artificial means, in counteracting the overpowering influence of natural causes. One was, that those belonging to the upper orders of society in Walcheren were always less affected with its endemic fevers than the poorer inhabitants: the other, that the British officers suffered less in this campaign, than the private men, as will be seen by an abstract of the returns. As this latter must be owing to some circumstances of superior accommodation and diet, there was encouragement to attempt some improvement in these respects, though the situation of the common soldier was as comfortable as belongs to his condition. With this view I suggested the use of stoves in the barracks as well as in the hospitals, in order to promote the dryness, warmth, and purity of the air. I also represented, that considerable benefit might arise from the men being supplied with a hot breakfast. It may likewise be remarked, that those who slept in the upper

stories of houses, were less liable to the disease, and had it in a milder form, than those who slept on the ground floors. The testimony of the natives is in favour of this observation. We had a striking confirmation of it in the visit we paid to the party accommodated at Fort Rammekins. To the observation of General Monnet (the French general who commanded during the siege) with respect to the good effect of a small quantity of ardent spirits in the morning, I may add a recommendation of mixing pepper freely with the broth and other articles of food.

There were, in the beginning of October, when I arrived, considerably more than one half of the army sick, or convalescent in hospitals. This amount was not owing merely to the numbers accruing from those who were daily taken ill, but was swelled in consequence of the small number of discharges, and the numbers of convalescents waiting for a passage to England; for under the influence of the endemial air, recoveries were slow and imperfect, and relapses very frequent, not only among the few who were discharged, but among the convalescents at the hospital, some of whom, when apparently in a fair way of doing well, would unaccountably drop down dead. This made me urge the conveyance of such subjects to England, with as little delay as possible. There were then 6000 subjects proper for being transported to England; and I recommended, in conjunction with Dr. Macgregor, the superintendant of the military hospitals, that line of battle ships, with their lower deck guns taken out, should be sent from England for this purpose, there being at Walcheren only the means of conveyance for 1000 men. This measure was rendered further necessary, by the rapid accumulation of sick in the hospitals, some of which were already over-crowded, and, if not relieved, must in themselves have proved a source of additional sickness and infection.

One of the most important circumstances in the operation of marsh miasma on the human body is the power of habit in mitigating its influence. The natives are not a robust people; they are of a very wan and sickly hue, and have all suffered more or less from the bad air which they breathe. The

children of both sexes are very subject to glandular and abdominal complaints; and the adults, particularly those of the lower orders, have all of them, some time or other in the course of their lives, laboured under the endemic intermittent. They are, however, infinitely less subject to intermittent fevers than strangers. It was curious to remark, in conversing with the natives, even persons of education, and medical practitioners, that they would not admit their country to be more unhealthy than any other; and when they were asked to account for the great sickness prevailing among our troops, they mentioned some frivolous circumstance in diet and habits of life, but would allow nothing to be ascribed to the insalubrity of the air. However unfounded this prejudice may be, it is strongly expressive of the great difference in point of health between natives and strangers. These strangers are also variously affected according to the district from which they come. It was found, that of the British troops, the natives of mountainous countries, and dry soils, were more frequently affected than the natives of flat and moist districts. It is also well ascertained, that strangers, if they survive the first attacks, become thereafter much less liable to the endemic intermittents. This was well proved and illustrated in a *Memoire* which was discovered in the house of the French general Monnet.*

It was there recommended that troops should not be frequently changed; for when it was the custom to send battalions from Bergen op Zoom, every fourth night, in succession, to work on the lines of Flushing, these men never failed, on their return, to be taken ill in great numbers. General Monnet therefore advised, however displeasing it might be to officers, that a stationary garrison should be retained in Walcheren, in order that it might be habituated to the air, (*acclimaté*), and he instanced a French regiment, which suffered in the second year of its being stationed there only one half the

* General Monnet was an able man, and had commanded at Flushing during the whole seven years in which the French had possession of that place. We may therefore admit the authority of his judgment and experience.

sickness and mortality which it suffered the first year, and hardly suffered at all the third. There were some other important remarks in the *Memoire*, such as, that when it might be necessary to reinforce the garrison, this should be done early in winter, in order that the men might be habituated to the climate before the return of the sickly months, which he reckoned to be June, July, August and September. He also recommended, that men who mount guard or who are employed in any other duty exposing them to cold damp or fatigue, should have a double ration of spirits (genievre,) and that there should be an additional allowance of this, and also of vinegar, during the sickly months. Another remark of this general was very consolatory to us at this time, namely, that the oldest inhabitant did not remember a year, in which this endemic had not disappeared before the end of October.

The expedition to Zealand sailed from the Downs on the 28th of July, and made good their landing on Walcheren, and North and South Beveland, on the 31st of July and the 1st of August. The only military operation of consequence was the siege of Flushing, which was invested on the 1st of August, and capitulated on the 15th of the same month. In the beginning of September, the islands of North and South Beveland were evacuated, and that part of the army which occupied them, returned to England; about 18,000 being left to garrison Walcheren. More than one half of these died, or were sent to England on account of sickness in the course of the three following months; and the island was finally evacuated on the 23d of December of that year.

The following Tables exhibit a view of the course of the sickness and mortality. I was enabled to bring them down to the end of the campaign, the Commander in Chief having obligingly allowed me to extract from the returns deposited at the War Office, what was wanting in the notes which I had taken in Zealand.

I am also enabled to state, on the authority of Dr. Bancroft,* and Mr. Keate the surgeon-general, that the whole

* Essay on the Yellow Fever, page 303.

number of sick sent to hospitals in Zealand, between the 21st of August and the 18th of November, 1809, amounted to 26,846, including relapses; and that the number of sick, including a small number of wounded conveyed from thence to England, between the 21st of August and 16th of December, amounted to 12,863; and that many instances occurred in those who returned to England apparently in health, in whom the endemial disease of Zealand appeared after the slight fatigue of a march.

Account of the Sickness and Mortality of the Army, in the Islands of Zealand, abstracted from the Monthly Returns, 25th August, 1809, and the three subsequent Months.

HEAD QUARTERS, FORT BATHZ, SOUTH BEVELAND.

DATE of the Monthly Return.	TOTAL.		SICK.			DIED.	
	Rank and File and Non-Commissioned Officers.	Commissioned Officers.	In Quarters.	In Hospitals.	Total.	Rank and File and Non-Commissioned Officers.	Officers.
25 Aug. 1809.	41642	1879	988	1713	2701	* 114	† 7

HEAD QUARTERS, MIDDLEBURGH, IN WALCHEREN.

DATE of the Monthly Returns.	TOTAL.		SICK.			DIED.	
	Rank and File and Non-Commissioned Officers.	Commissioned Officers.	In Quarters.	In Hospitals.	Total.	Rank and File and Non-Commissioned Officers.	Officers.
25 Sep. 1809.	16931	723	3829	5000	8829	883	29
25 Oct.	11921	611	2845	3027	5872	760	9
25 Nov.	6297	452	469	624	1093	196	3

* In this number 100 who were killed and died of wounds are included, so that only 14 died of disease.

† Of these one was killed as above, and 6 died of wounds, so that none died of disease.

Account of the Sickness and Mortality in the Island of Walcheren, abstracted from the Weekly Returns, dated the 10th September, and the twelve subsequent Weeks.

DATE of the Weekly Return.	Rank and File and Non-Commissioned Officers.			Officers.		
	Total.	Sick.	Died.	Total.	Sick.	Died.
10 September	17870	6931	221	770	No ret.	4
17	17410	8141	277	765	235	7
24	16409	8754	287	782	191	3
1 October	16156	9127	254	748	172	2
8	15276	8969	217	719	168	3
16	——	——	Return	mislaid	—	
23	13017	7145	128	655	113	
31	11747	6228	121	292	80	1
7 November	——	——	Return	mislaid	—	
14	8868	3799	40	559	45	
21	7926	1226	36	543	47	
29	6261	1158	30	383	30	

The first circumstance which strikes the eye on inspecting these Tables, is the smallness of the mortality in the first month of service. It not only proves, that several weeks are necessary for these deleterious exhalations to act upon the system, so as to produce disease, but that the rate of this mortality is so much less than in ordinary circumstances, as to stagger one's belief. According to the statement here exhibited, only 14 died of disease in 41462 in a calendar month, and not one officer. I at first distrusted my own accuracy in making the abstract; but repeated examination convinced me that I was correct. I next distrusted the accuracy of the returns, but the adjutant-general assured me that there was not the smallest reason to suspect an error. According to the population returns of 1801, the smallest degree of mortality in any of the counties of England and Wales, was in Pembrokeshire; and was 1 in 76. The greatest mortality was in London; and was 1 in 31. But it is not fair to compare the mortality of an army, with that of the general population; for the latter

includes all ages, sexes, and constitutions, whereas the former consists of the robust part of the male sex, in the prime of life. The computation being made on the like class, it would appear, that there is a considerably smaller rate of mortality than in people of the same age in England; for according to Simpson's tables, the mortality here in men and women from 20 to 45 is at the rate of one in 50 annually; but the annual rate of it in this army, if computed by the month ending the 26th of August, would be only 1 in 248.

This low rate of mortality will appear in a still more striking point of view, when compared with that of fleets and armies elsewhere: for at Coxheath in the year 1779*, the annual mortality was at the rate of 1 to 109; and during the time in which I kept records of the fleet in the West Indies, the lowest in any month, April 1782, was equal to an annual mortality of 1 in 72; and the actual annual mortality about that time in the army was 1 in 4, and in some particular spots more than one half.

Was this small rate of mortality in Zealand at this period, owing to the superior health and strength of those men who compose an army above the persons of both sexes, on whom the calculation is made in civil society? Or is it owing to this, that in the beginning of an expedition men's minds are in that elated state, from the sanguine hopes of victory and success, which is favorable to health? I have remarked elsewhere†, that in fleets, impressions of this kind have a striking effect on the health of men. Probably both the abovementioned circumstances had a share in keeping down the mortality at this period. This however was of short duration; for it will be seen by the Table, that the sick had begun to increase rapidly at this time; and that before the 10th of September, the mortality had become very great. As there is no account in these Tables, of the numbers taken ill in the intermediate times, nor of those discharged cured; nor any accurate statement of the

* See Blane's Observations on the Diseases of Seamen, page 170. Third Edition.

† Ibid. page 77.

number sent to England from time to time, we have no scale of the decreasing sickness, as the season changed, except the weekly diminution of the number of effective men. Thus it will appear by a calculation made on Table 2d, that in the week between the 17th and 24th of September, the effective force was reduced from 9269 to 7655, so that 1 in 5.7 that is, about 2 in 11, had in that time become unfit for duty. It will appear by a like calculation, that on the 23d of October, the effective force was reduced to 5872; and that in the course of the succeeding week, it was reduced to 5519; so that 353 had in that time become unfit for duty, that is, 1 in 1.094, or about 1 in 11. By this rule, the sickness was diminished by one half in the course of a few weeks, making allowance for the greater number that will be taken ill at the beginning of a campaign: for the most susceptible will necessarily first fall ill. No fair judgment can be formed from the returns of November, for reinforcements, of the amount of which I am uninformed, arrived from England in the course of that month to assist in the evacuation of the island. From all the evidence, however, I could procure, the number of seizures continued to diminish as the winter advanced, conformably to what we had been told by the natives.

The Island of Walcheren is 13 miles long from east to west, and 9 miles from north to south. The capital of this island and of all Zealand is Middleburgh, an open town in the centre of the island, but communicating with the sea by a broad and deep canal, continued from a natural navigable inlet, leading to Rammekens, on the south-east quarter of the island. Flushing on the south side of the island is the principal sea-port and arsenal, and the only place of strength. The whole island, with the exception of some hills, or rather mounds of sand on the western shore, is a dead flat, below the level of the sea at high water and preserved from inundation by dykes. The soil consists of a fine white sand known in the eastern counties of England by the name of silt, and about a third part of clay. It is divided into small square inclosures, by ditches, which serve as drains; and these were about two thirds full of turbid water when I was there. They emit no

smell, that I could perceive; but I was sensible of a bad smell proceeding from some ponds of stagnating water. The soil seems to be a mass of alluvial matter like Deltas of great rivers; and the whole islands of Zealand seem to have been formed by the *detritus* carried down by the Rhine and Scheldt, and forming accumulations for a long series of ages. There is a poison in the exhalations from such soils, the nature of which is entirely unknown. It is not animal putrefaction; for it is perfectly well ascertained, that those who are exposed to putrid vapours, such as anatomists and tanners, are not affected by complaints of this kind; nor indeed by any complaint, unless these vapours are very concentrated; and the disease in that case is not an intermittent fever. Water in a state of stagnation, without any ascertainable principle of contamination, seems to generate these exhalations. It is only from the absence of stagnation, that we can account for the Delta of the Nile not producing the same disease as Zealand. This is so far from being the case, that Lower Egypt is one of the most healthful countries in the world, and is not infested with endemic intermittents. This remark did not escape the geographer* Strabo; and he assigns as the cause, that the stagnation of the water was prevented by the annual inundation of the Nile. It appears also, from a work of Dr. Macgregor, that intermittent fevers, though not unknown, are not endemic in Egypt†. On the other hand we know from the medical history of Minorca‡, that, though this island consists of a rocky bottom, and very thin soil, yet in consequence of some stagnant water in channels and pools, severe intermittents are very common. I need hardly mention, that the plague is no exception, this being a disease depending on *human* effluvia, and entirely unconnected with the nature of the soil.

An intelligent general officer on the expedition to Egypt in the year 1800, who had served in all climates, assured me, that he had nowhere seen so little sickness and mortality from

* Vid. Strabon. Geograph. lib. 17. page 1143, Amstelodam. 1707.

† Vid. Medical Sketches of the Expedition to Egypt from India, by James Macgregor, M. D., page 99 and 163. London 1804.

‡ Vid. Cleghorn on the Diseases of Minorca.

disease; for sickness, even including the plague, was less destructive than in any other country in which he had served; so that there was here an exception to a rule which holds everywhere else, that disease is more fatal than the sword; for more were killed, or died by wounds, than by sickness, including even those who died of the plague. Nor can it be alleged, that humidity alone may have the effect of producing intermittent fevers; for the vapour of pure fresh water, when not in a state of long stagnation, is found to be free from any bad effects upon the greater number of constitutions. It is remarkable, that though much greater quantities of rain fall in the western parts of England than in the eastern, the average in some counties of the former being more than double of what it is in those of the latter, yet it does not appear that health is in the least affected by this circumstance; and seamen, even in the thickest fogs on the banks of Newfoundland, for many days together, preserve their health perfectly. This poison, therefore, is some principle, with the nature of which we are still unacquainted. There are also certain species of decayed organic matter, the exhalations from which are not at all productive of agues nor of any other disorder. I allude to bogs or peat mosses. This is fully proved in Scotland, but still more in Ireland, where there are immense tracts of this soil, without any hurtful influence upon health. It might naturally be expected also, that the swamps round Venice would be productive of endemic fevers. This is not the case; and it is probably owing to the water which forms them, being sea-water.

The *miasmata* in Zealand, are more noxious than the like exhalations in England; the intermittents in the former, being more violent, untractable, and fatal, than those which occur in the fenny counties, in the eastern parts of our own country. I estimate this violence, by the high degree of febrile heat and delirium, by the excessive secretion of bile, the want of distinct intermissions, and the more frequent swellings of the liver and spleen; these taking place in the course of a very few weeks, which in England seldom occur but under a long continuance, or from frequent relapses of the disease.

The exhalations of the soil in tropical climates, extend farther, and are still more malignant than those of Zealand. Ships at the distance of 3000 feet from swampy shores, (a distance to which it did not extend in Zealand,) and even farther, were affected by the noxious exhalations, according to my own observations and those of others in the West Indies; and I have been credibly informed of the like fact, with regard to the India ships in the channel which leads to Calcutta. This greater density and malignity of the exhalations, might naturally be expected from the greater intensity of atmospheric heat.

A medical gentleman belonging to the army in St. Lucia, one of the Caribbee Islands, in the year 1781, at which time I was Physician to the fleet on that station, favored me with the following statement, which throws considerable light on the subject here treated of.

"The Fevers in general are of the low kind, terminating in intermittents.

"Unhealthy situations are the causes of many diseases here, particularly the worst sort of fever and intermittents.

"One regiment, viz. the 90th on the Morne Fortunée lost 271 men; the 91st on the side of the hill 318; the 98th in *Grand Cul de Sac* at the bottom 486.

"The hill or morne is above the level of the sea 872 feet."

STATE OF SICKNESS AND MORTALITY IN THE ARMY AT ST. LUCIA.

Strength of the Garrison.	The different Months.	Men in Garrison fit for Duty.	In Genl. Hospitals.				Prevailing Diseases.	Number of Sick.	Monthly Deaths.	In Regtl. Hospitals.				Prevailing Diseases.	Number of Sick.	Monthly Deaths.	Total Sick.	Total Deaths.
			Fevers.	Agues.	Fluxes.	Dropsy.				Fevers.	Agues.	Fluxes.	Dropsy.					
2825	May.	1784	50	14	36	5	Fever.	105	43	61	56	313	6	Flux.	436	16	541	59
1737	June.	1093	57	9	43	4	Do.	113	68	65	56	413	0	Do.	534	68	644	136
*1912	July.	1012	42	8	51	1	Flux.	102	68	105	94	589	10	Do.	798	125	900	193
1989	August.	1084	34	19	83	8	Do.	144	110	127	202	427	5	Do.	761	142	905	252
1582	September.	899	33	29	86	10	Do.	158	101	100	161	261	3	Do.	525	152	683	253
1533	October.	837	27	29	77	5	Do.	138	56	179	183	196	0	Do.	558	156	696	212
1401	November.	801	25	38	64	4	Do.	131	74	87	166	214	2	Do.	469	65	600	139
1286	December.	883	21	28	49	2	Do.	100	54	60	77	164	2	Do.	363	51	403	105
1268	January.	942	11	38	60	1	Do.	110	69	51	70	104	1	Do.	230	32	325	101
†1540	February.	1230	14	20	67	3	Do.	104	41	47	69	104	0	Do.	220	40	310	81
1554	March.	1233	4	12	49	3	Do.	68	32	77	80	93	3	Do.	253	32	321	64
1442	April.	1172	12	21	33	0	Do.	66	15	72	68	71	1	Fever.	212	29	278	44
			Died in the Genl. Hospital - - -						731	Died in Regtl. Hospital - - -						908	Total.	1639

* 46th and 5th Regiments joined.

† 37th Regiment joined.

It is evident that the severity of the symptoms, in the Zealand fever, added greatly to the difficulty of the cure; and there could be no opportunity of employing Peruvian Bark or other specific remedies, till its violence had abated, and the redundant bile had been carried off. The treatment of this acute state, consisted chiefly in giving such remedies as purged freely; and in selecting them, the preference was due to those which acted most readily on the liver and the bile, such as calomel; those which were least heating, as the neutral salts; and such as were best borne by the stomach, which, in a great many cases, was extremely irritable. In the course of the general inspection, in which my duty consisted at this time, I had not myself an opportunity of directing and watching the practical details of individual cases; but I had considerable experience in this way, in my attendance on officers in England, who either brought the complaint with them, or were seized on the passage, or after their return to this country.

One of the medical controversies respecting the cause of intermittents, is founded on the difference of opinion on the question, how far the excess of bile may be considered as the cause of them. It certainly cannot, in correct language, be called the cause; otherwise every case of redundant bile, such as the *cholera morbus*, would be attended or followed by an ague. Certain it is, however, that epidemic intermittents not only occur exclusively in those seasons in which an excessive secretion of bile is most apt to arise, but every attack, whether original or relapsed, which I have seen, bore evident marks of an excessive flow of this humour. The true statement of the fact perhaps is, that that state of the body, in which there is the strongest tendency to a copious secretion of bile, either from the natural constitution, or the season of the year, constitutes a predisposition favourable to the action of the poisonous exhalations. There seems in this something analogous to other facts mentioned in a former paper respecting the Plague and the Yellow Fever, namely, that the human body is not liable to be affected by them, unless when predisposed by a certain temperature of the atmosphere. If the attack of

this disease depended merely on the quantity of the exhalations, they would be most frequent in June and July, when the heat of the atmosphere is highest. But there is a still more decisive proof of its depending on that season, in which the secretion of bile is most copious, from this fact, that when those who have imbibed the poison, are transported into countries where the air is in a state of greatest purity, it is in the autumnal months, that they are most commonly attacked. There was a very striking proof of this after the campaign of North Holland in 1779. In the following year some of the officers and men who had escaped the disease, were taken ill in the autumnal months; and none that I heard of, at any other season of the year.

The greatest difficulties which occurred in the cure of those severe intermittents in their early stages, proceeded from the great irritability of stomach, which rendered it very difficult to exhibit either purgatives with a view to procure intermissions, or bark in sufficient quantity after intermissions had been procured. The best means, I found, of obviating the first difficulty, was to purge with calomel; which, besides the advantage already mentioned, is, on account of its small bulk, swallowed without repugnance, and, by its weight, is not easily rejected after being swallowed; and in case the stomach rejected neutral salts, to assist its operation by considerable quantities of carbonated magnesia given in effervescence with lemon juice. It is sometimes advisable to give mercury as an alterative. Ramazini* relates, that a person affected with an obstinate ague was cured by mercurial friction administered for the lues venerea. The second difficulty was obviated by substituting opium and arsenic for bark. The stomachs of some patients were reconciled to the bark, by administering it with opium or magnesia in effervescence, or both; to others it was so insuperably offensive, that it could not be borne in any form, quantity, or combination. In these cases, the cure was effected by opium and arsenic, along with such bitters and aromatics, as the stomach would bear. Where

* De morbis artificum.

the periodical paroxysms had not ceased, the tincture of opium was given from 30 to 50 drops, in the intermission, a few hours before the expected hour of seizure, accompanied with as much rhubarb as would counteract its restringent effects. Sometimes the first administration of this stopped the paroxysm; but more commonly only alleviated it, and did not stop it till the second or third time. After the paroxysms were stopped, it was continued in smaller doses at the former periods; and either bark, or, if the stomach would not bear it, arsenic* was given in the intervals, till it might reasonably be supposed that the tendency to relapse had ceased. At this period, carbonate of iron was also given with safety and advantage, and with still more benefit at a more advanced period, in order to obviate debility and emaciation, and to afford a still greater security against relapse, when there were no remains of fever, nor suspicion of local affection. I have cured intermittent fevers in which bark had failed, both in the West Indies†, and in St. Thomas's Hospital, with the oxide of zinc; but I have made little use of this remedy since I became acquainted with the superior powers of opium and arsenic.

The duration of this tendency to relapse, was very indefinite. There is a subtle, incomprehensible impression made on the living human body by marshy exhalations, which, though attended with no immediate visible effect, so modify the constitution, that many months afterwards, though the person has been living all the while in a pure air, an intermittent fever arises sometimes, without any visible exciting cause; but most frequently in consequence of cold, fatigue, watching, privation of some kind, or, as has been before mentioned, on the return of the autumn. This, as has been already remarked, was strikingly exemplified in the troops who had served in the campaign in North Holland in September and October, 1799. Among these was an officer who came to town to put himself under my care, in the month of August in the follow-

* The dose was from six to twelve drops of the liquor arsenicalis of the London Phamacopœia, three times a day.

† See Observations on the Diseases of Seamen, p. 442. Third Edition.

ing year. He belonged to an encampment at Swinly near Windsor, a district not liable to such complaints; and he informed me, that not only himself, but others who had not been affected in Holland, had been seized with intermittents, and that this disorder was confined to those who had been in the abovementioned campaign. I was informed in February, 1811, by a field officer, who came home from Portugal on account of bad health, that those men of his own regiment as well as of others, who had served before in Walcheren, were, upon the first exposure and fatigue, rendered unfit for duty, chiefly by remittent fevers, so as to leave not more than a third part of them fit for service. Here there was a proportion of sick, far above that of the army in general. This tendency is still stronger, if the person had actually suffered from immediate exposure to these exhalations; a consideration which obviously suggests the necessity of continuing the remedies for a considerable time after all the symptoms of the complaint have subsided, and also of avoiding the exciting causes above enumerated.

I had, in the course of this service, an opportunity of observing the extent to which the noxious exhalations extended, which was found to be less than is, I believe, generally known. Not only the crews of the ships in the road of Flushing were entirely free from this endemic, but also the guard-ships which were stationed in the narrow channel between this island and Beveland. The width of this channel is about 6000 feet; yet, though some of the ships lay much nearer to one shore, than to the other, there was no instance of any of the men or officers being taken ill with the same disorder as that with which the troops on shore were affected.

I had an opportunity of farther proving and illustrating this observation, in the service I was sent upon to Northfleet in the autumn of the following year. The spot upon which it is intended to erect the proposed dock-yard and arsenal, is a marsh of about 700 acres. On the banks of the river, both above and below it, there is a soil of a similar description, but not immediately adjoining to it on either side; for above is the village of Green Hithe, which stands on a chalky bottom,

rising to a few inches below the surface, and is a projecting point of the general chalky hills which compose the adjacent country. Below it, on the bank of the river, there is a similar intervention of the chalk, where the village of Northfleet stands. Both these are nearly on a level with the marsh; yet the intermittent fevers are almost unknown at either of them, whereas they are extremely prevalent on the adjacent hills. I found this fact analogous to some others to which my enquiries at this time led me. Dr. Maton informed me, that in the neighbourhood of Weymouth, though there is stagnating water near the sea, producing intermittents, these disorders are not known in the dry districts on each side, on a level with the water, but prevail on the adjacent hills. A Cornish gentleman stated to me, that at St. Blazey, between St. Austle and Lestwithiel, agues prevail much on a hill adjoining to a marsh contiguous to the sea beach. And Major Rennel, the celebrated geographer, says, that in a district which he surveyed on the river Burrampooter, the waters of which overflow, and, upon retiring, leave an oozy flat, the agues prevail to the very summit of the adjoining hills. Lancisi mentions a hill, on which the same sickness prevails, as in the marshy lands at the foot of it.* An instance of the same fact in St. Lucia, has been already mentioned.

It is known to every one, ever so little acquainted with the operations of nature, and indeed the common phenomena of clouds and rain render it obvious to the most ordinary observer, that water, recently exhaled from the surface of the earth, has a tendency to ascend, and being lifted over parts on the same level, impinges on the neighbouring heights. There is reason to believe that impure and unwholesome particles in general are attracted by watery vapours; for it is remarkable, that, in case of fogs, offensive smells are perceived, which in a dry state of the air were [illegible]d and quiescent. Though pure humidity, therefore, is innocuous, it may prove pernicious as a vehicle of unwholesome volatile matter. In like manner, the poisonous principle of marshes, whatever it is, being engen-

* Vid. Lancisi de Noxiis Paludum Effluviis, page 120, Romæ 1717.

dered by moist soils, will naturally adhere to the watery vapours, and ascend with them.

There are facts to prove, that certain artificial changes tend greatly to improve the air of particular spots. It is well ascertained, by the records of physic, by the bills of mortality, and by civil* history, that intermittent fevers were very prevalent in London, before the formation of common sewers and the adoption of other means, such as paving, conducive to cleanliness and dryness; to which, more perhaps than to the improved habits of life, in point of diet, may be ascribed the unexampled state of health in this great metropolis. There is a still stronger proof and illustration of this in Portsmouth, which is built upon a flat, composing part of the marshy island of Portsea. I am assured by a medical gentleman who practised there, but is now retired from practice, that when he first knew that place, intermittent fevers were very prevalent; but the town having been drained and paved in the year 1769, that disorder has since been unknown there.† Hilsea and other parts of the Island of Portsea have retained the same aguish character; but this disease has greatly decreased there also, since a drainage which was made in the year 1793. Numberless other examples might be adduced in proof of this, derived from the general improved state of health in various parts of the kingdom, in consequence of the inclosure of commons for the purpose of agricultural improvements, of which draining is one of the principal. This has been felt on the spot now in question; for I am assured by the Rev. Mr. Crackhilt, who has resided in the parish of Northfleet for 42

* King James the First, and Oliver Cromwell, both died of agues contracted in London.

† It appears from the late Parliamentary Report, that Portsmouth has had an accession to its population, during the last ten years, of 8401 inhabitants; that the healthfulness of it has increased, the proportion of deaths in 1800 having been one in 28; in 1810, one in 35; both computations being taken on an average of three years. Plymouth in the same time has acquired an additional population of 12,866, and the mortality has varied but little, having been one in 27 in 1800, and not quite one in 28 in 1810. The population of Portsmouth, by the last Report, was 40,567; that of Plymouth, 56,060.

years, that there has been in that time a progressive amelioration in point of health.

It is mentioned by Bishop Burnet, in his History of the Reformation, that in the last year of Queen Mary's reign, "Intermittent fevers were so universal and contagious, that they raged like a plague;" and we learn from Sydenham and Morton, that intermittent fever was one of the most prevalent and fatal disorders in London from 1661 till 1665, and that for some years afterwards this complaint was very rare. This was probably owing to the greater dryness of the streets by draining, when the city was rebuilt after the great fire of 1666. We are told however by Sydenham, that intermittent fevers revived before the end of that century, and were epidemic from 1677 to 1685. They prevailed a good deal during the first part of the 18th century; and we learn from a work of Dr. Fothergill's, that they occurred as an annual epidemic in the spring and autumn, as late as the years 1751, 1758 and 1754. For more than 30 years past, according to my own observation and the best information I can gather from others, this disease has not been known as an epidemic in this metropolis. I was physician in St. Thomas's Hospital, from the year 1783 till 1795, during which period, the whole number of intermittents that fell under my care, was 192. As there were three physicians, this be may reckoned the third part of the whole admissions for twelve years in an hospital containing 400 patients. I have not noted in my journal, from what quarter they came; but my memory perfectly warrants me in affirming, that the great majority of them were labourers from marshy districts, particularly Kent and Essex, and there is this internal proof of the greater part being strangers, that, of the number above specified, only 33 were females. Had they belonged to the resident population, the number of each sex would have been nearly equal. On referring to the notes, which I keep of my private practice, I find that in the course of 25 years, I have met with 63 intermittents. Of these, 12 belonged to the armies, that had served in Holland or Zealand; and of the number affected in England, more than one half came from the aguish counties. Several of the cases of

those who belonged to the resident population, were so slight and irregular, as to render it doubtful whether they were strictly referable to this *genus* of disease.

One of the objects prescribed to me on my visit to Northfleet, was to ascertain how far the health of that spot might be affected by the exhalations from the Essex side of the river. What has been already said on the subject relating to Zealand, affords an answer to this question; the width of the channel between Walcheren and Beveland being about six thousand feet, and the breadth of the river at Northfleet, according to a plan in the possession of Mr. Rennie the engineer, being three thousand feet. The distance of Essex from the bank of the river at Northfleet, is therefore about the same as between the ships riding in the middle of the channel, between the shores of Walcheren and Beveland. I found, however, from the most accurate enquiry, that the endemic fever had not spread, either to the ships of war in the roads of Flushing, or to those stationed between the islands, though some of them were nearer the shore than the middle of the channel.

I was further informed by Mr. Rennie, that in boring the ground at Northfleet, he found that there were beds of chalk and gravel underneath the clay, so that these materials, when thrown up in making the excavations, would render the surface dry and wholesome; and that he had calculated their quantity would be such, as to raise the artificial surface eighteen feet higher than the present natural surface.

Taking into consideration, therefore, the great changes which would take place in the marshy spot on which it was proposed to erect the docks and arsenals, in consequence of the excavations, the drainings, the pavings, buildings, and various other operations for forges and other machinery, I gave it as my opinion, that no solid objection, on the score of health, would arise to the plan proposed.

APPENDIX,

Containing remarks on the comparative Health and Population of England and Wales, at different periods.

SINCE the preceding article was submitted to the Society, the Speaker of the House of Commons has done the author the honour of sending him a copy of the returns of the population and parish registers, made in pursuance of an Act of Parliament past last year. From these, some interesting and authentic information may be gathered respecting the public health, particularly with regard to the disease which is the subject of this article.

It appears from these returns, that the mortality in England and Wales in the year 1810, was about 1 in 49, the whole population being 10,150,615, and the number of burials, 208,184, that the births were in the proportion of 1 in 34, and that every 10 marriages produced on an average 42 children.

The counties in which the mortality was above the average, were Middlesex, where it was 1 in 36; Kent, where it was 1 in 41; Warwickshire, where it was 1 in 42; Cambridgeshire, where it was 1 in 44; Essex, where it was also 1 in 44; Surrey, where it was 1 in 45; the East Riding of Yorkshire, where it was 1 in 47; Lancashire, where it was 1 in 48. Of these eight counties, four are subject to agues, namely, Kent, Essex, Cambridgeshire, and the East Riding of Yorkshire, comprising all the counties of that description, except Lincolnshire, in which the mortality is below the average, being 1 in 51. The smaller degree of mortality in this last, is no doubt owing to the great proportion which the dry and upland part of it bears to the fenny districts. That there is a great difference in the mortality in these, is proved by their respective returns. The mortality in the town of Boston, for instance, which is situated in the fens, is 1 in 27; whereas that of Stamford, which is in the dry and upland division, is 1 in 50.

And here it may be proper to advert to an observation grounded on a very satisfactory induction of facts, in a tract lately published, of which Dr. Wells is the author*, that Phthisis Pulmonalis is but little known in those districts which are infested with the exhalations producing intermittent fevers. But as Phthisis Pulmonalis forms one of the principal heads in the general mortality of England, so much the more is to be imputed to intermittents, in those districts in which they are endemic.

It may be asked, whence arises the greater mortality of the other four counties, of which the rate is above the average. With regard to Middlesex, it is imputable no doubt to the various circumstances adverse to health, peculiar to the metropolis, such as the more intemperate habits of life, and perhaps still more the unfavorable influence of the air of this great city, particularly on young children. It is worthy of remark, however, that London has of late years been improving in salubrity; for it appears by the bills of mortality, that the burials invariably and considerably exceeded the christenings, till a few years before the close of the last century: whereas since that time the christenings have generally exceeded the burials. This may in part be ascribed to vaccination; but it cannot be entirely owing to this cause, for the decrease of burials took place some years before that admirable discovery. The first year on the records of the bills of mortality, in which the births exceeded the burials in this metropolis, was 1790. The decrease in the deaths of children under two years of age, is the most striking point of difference in these tables. In the beginning and middle of last century, their annual amount fluctuated from nine to ten thousand. Towards the end of last century, and during that part of the present which has elapsed, they have fluctuated from five to six thousand: and considering that the computed number of inhabitants in 1700, was only 674,350, and in 1810, by the late enumeration it is

* This tract is an article in Third Vol. of a work entitled, Transactions of a Society for the improvement of Medical and Chirurgical Knowledge. London, 1812.

1,050,000, it is evident that the relative mortality in this class, is little more than one third of what it was a hundred years ago. In farther proof of the improving health of London, it is stated in this Parliamentary Report, that the annual mortality in 1700, was one in 25; in 1750, one in 21; in 1801, and the four preceding years, one in 35; and in 1810, one in 38. The increased mortality in the middle of last century, has been imputed to the great abuse of spirituous liquors, which was checked about that time by the imposition of high duties. The other causes of superior health, seem to consist in a general improvement in the habits of life, particularly with regard to ventilation and cleanliness, greater abundance and better quality of food, the improved state of medicine, and the better management of children.

The high proportion of mortality in Surrey, is no doubt owing to its containing a portion of the metropolis consisting of a population of 170,000, which is more than one-half of the whole county.

The high rate of mortality in Warwickshire, seems at first sight the most difficult to be accounted for, the air of this part of the kingdom being very salubrious. It is no doubt owing to the town of Birmingham being situated here, for it comprises two-fifths of the population; and the mortality on the average of the last ten years, is one in 34. The mortality in this town is greater than in Manchester, Leeds, or Norwich, the operations in metals, being probably more pernicious to health, than the operations of weaving.*

With regard to Lancashire, where the mortality is somewhat above the average, the number of large towns and extensive manufactures, affording a greater proportion of artisans, to rural inhabitants, than in any other county, except those in which the metropolis is situated, is certainly the cause of this, for the air is very salubrious, and the great quantity and cheapness of fuel, is extremely friendly to life, health and comfort. The report of Manchester, which is the second town in England in point of population, forms an exception to this remark,

* See Ramazini de Morbis artificum.

for the mortality there on the average of the last ten years, is one in 58, and in the year 1810, one in 74. But that of Liverpool, is one in 34 on the average of ten years, and one in 30, in the year 1810. In the former we have another pleasing picture of the progressive improvement of health, for it is stated by the late Dr. Percival, that in the year 1757, the annual mortality of Manchester, was one in 25.7, and in 1770, one in 28; although at the former period the population was not quite one-fourth, and at the latter period, not one-half of its present amount.* This improvement of health is greatly imputable to certain regulations of police, particularly with respect to ventilation, recommended and introduced by the above mentioned benevolent, enlightened, and active physician.

The like progressive amelioration of health, is deducible from these public documents with respect to the whole kingdom, as has been remarked locally; for it appears from the returns of 1800, that the mortality of all England and Wales was then one in 45; but in 1810, it proves to be one in 49.

This statement of facts, coupled with the general result of the population returns, from which it appears, that this island has acquired an addition of 1,536,000† inhabitants in the last ten years, together with the annual increase of wholesome subsistence from the rapid extension of agriculture, may be fairly deemed a proof of the increasing happiness, power and prosperity of this country, and cannot fail to afford the most solid satisfaction and delight, to every benevolent and patriotic mind.

* See the Works of Dr. Thomas Percival, Vol. II. Warrington, 1789.

† According to the last returns the population of Great Britain was 12,596,803 persons, of whom 6,334,087 were males, and 6,262,716 were females. It farther appears, that when classed according to their occupations, 895,998 families were engaged in agriculture, 1,129,049 were engaged in trade, manufactures, or handicrafts, and that the number of families comprised in neither of these classes was 519,168.

A Case of Splenitis, with further remarks on that Disease. By Robert Bree, M. D. F. R. S.

[From the Medico-Chirurgical Transactions, Vol. III.]

Having laid before the Society a Case of "Painful and Tumid Spleen,"* which I ventured to offer as a true description of the earliest and most simple state of splenitis, I beg leave to call their attention to an example of that affection in its more advanced stage. In this part of its progress the disease may be expected to have assumed its inflammatory character, and to correspond with the account of writers on splenitis. Even in this stage I believe that the treatment may be improved. It appears that the opinions of physicians are not settled respecting this disease; since the treatment of the following case had been exceedingly various, and though it was directed by men of great intelligence and experience, the plan that was successful had not made a part of their practice; and it must be inferred, that continued daily purgation had not been yet considered an effectual means of cure in splenitis.

The subject of this case is a young lady about 25 years of age, whose disease was first noticed in the year 1808, during a state of great uneasiness of mind. She had been sensible of debility and shortness of breath in the spring of this year, but in the summer she was free from complaint. In the month of September she began to complain of an uneasiness across the pit of the stomach, below the sternum, from the spurious ribs of one side to those of the other side, and under them. The right side was most affected, but she could not lie on either side. The pulse was not disturbed. Mr. Harcourt who attended the patient observed, that it varied from 60 to 70, and only became quicker on the advance of the disease, in fits of pain and dyspnœa. In three weeks she began to suffer pain on pressure of the left side, and the right side became more easy in proportion as this sensation increased. She now had frequent nausea and puking, but an eager desire for food in the intervals of her sickness.

* See Eclectic Repertory, Vol. III. page 283.

The first year passed in this manner.

In the course of the next year, 1809, the disease had increased greatly, and she was attended by many of the most eminent men in our profession.

In April she was affected with cough, but there was no expectoration.

In May and June she went through the full trial of a course of mercury.

In the middle of summer there was an abatement of severity in the symptoms for a short time.

In September the disease had again increased in violence. To the symptoms already enumerated there was added a new form of dyspnœa. It now came on by spasmodic fits, and it also distressed her in the intervals as before.

In November she had some mitigation of her sufferings, but there was no suspension of her complaint. On the attacks of spasm and pain the pulse rose to 120; at other times it was seldom higher than 80 in a minute.

I was desired to visit this patient first on March 17th, 1810, about two years from the beginning of her complaint, which had now greatly increased in violence, and was attended by great depression of mind. The attacks of spasm were particularly distressing: for these she took large doses of antispasmodic and opiate medicines, which gave relief for short intervals only. Those attacks consisted of difficulty of breathing, and sense of suffocation, accompanied with faintness and confusion of the head. When the paroxysm abated, extreme lowness succeeded; and the pain of the left side grew insupportable. With more or less of these symptoms, she had been unable to lie down for several months, and she had a heavy weight in the left side. Upon examination of the side, it was found to be enlarged and painful: the enlargement was not prominent at a point, but diffused from the margin of the false ribs to the pit of the stomach and backwards to the spine. The 8th rib, and the lower ribs, appeared to be pushed forward. The least motion of the body aggravated the symptoms: the pulse had become as high as 90 between the attacks: the

tongue was moist, with a whitish surface, the skin was natural, the evacuations of stool and urine were natural.

I prescribed pills composed of aloes with antimonial powder and extract of conium to be taken every six hours, with a saline draught. She was recommended to bear the attacks as far as possible without applying to opiates and antispasmodics.

On my next visit I found that she was beginning to derive benefit from this plan. The symptoms had abated gradually from the first purgative operation of the medicines, which were continued with the effect of producing numerous stools every day till the 21st of April.

April 21.—The pulse was less frequent: the spasms were were less distressing in violence and duration, and she had seldom taken the anodyne draught. The tension and soreness of the side were much less. She was directed to pursue the same medicines.

May 5, 19.—She had continued to have five or six stools daily, and to discharge much urine, but neither of these evacuations had any remarkable appearance. The swelling of the side was more diminished. The spasms were not so frequent or severe, and the dyspnœa and local pain, though yet constant, were become bearable. The pulse was 96 only during the attacks. From the general amendment, it was determined to attempt the use of a stomachic, combined with aperients. An infusion of cascarilla was directed to be taken twice in the day with soda and aloetic wine: and a saline draught was prescribed to be taken at bed time, with tartarized antimony, and camphorated tincture of opium.

June 16, 30.—After a short trial of the stomachic draughts, it had appeared that pain, general irritation, and dyspnœa were increased, and that the bowels had not been so freely operated upon as by the former medicines. She was therefore directed to resume the aloetic antimonial pills, and to take a saline draught with sulphate of potash instead of that with infusion of cascarilla.

July 14, 28.—This plan of medicine having been pursued through the month of July, all her complaints were conside-

rably lessened by the end of the month. She left her room about this time.

August 11.—She still persisted in the evacuant plan with continued good effect. The fulness or general swelling of the side was gone, but there was a perceptible thickness of the cartilaginous extremities of the false ribs, and of their integuments, with some tenderness on the pressure of these parts, close under the false ribs, and on their edge up to the scrobiculus cordis. By the absence of the swelling internally, these external parts were more distinctly noticed as the seat of complaint. The side had been invariably more uneasy when the bowels were less purged. She had, however, been moved from four to six times every day. The pulse was still quicker than natural, but it generally was at 90 in a minute without much variation. It appeared proper to continue the plan of medicine, by taking pills of tartarized antimony and aloes every night, and a saline draught every morning.

September.—At the beginning of this month the thermometer stood at 80, and in a few days afterwards at 55 and 60, but she felt no return of disease, and could now lie very well on either side. The pulse was 84. The pills and draught had procured not less than four motions every day, which had no extraordinary appearance. She had a good appetite, and the power of taking exercise without fatigue or dyspnœa.

As the disease had manifested itself most in the spring and autumn, I had looked to the advance of the present season with anxiety, but from the favorable state of the case at this period, I began to expect that the patient might escape a relapse. She was not, however, so far confirmed in health, or the disposition of the affected organ was not so far changed, as to realize my hope.

For several days after the 20th of September, a weight had been gradually increasing in the left side, attended with some uneasiness in lying on the right side. The head was confused and giddy, and she had a short and panting respiration, with chilliness and heat at intervals. The pulse was 92. She had lately used a fuller diet and more exercise, and the menses were expected in a few days. I hoped that this change, with the effect of

active purging, might reduce the action and fulness of the vessels, and remove the attack. I prescribed larger doses of aloes united with calomel and a purging saline draught every morning. She was to take a draught of camphorated mixture with camphorated tincture of opium after the operation every night, and oftener if necessary. These means answered very well. In two days the menses appeared in great abundance, but with a natural colour, and the patient was relieved from this short attack by the end of the month.

October.—After this she remained free from complaint for several weeks.

November 14.—In the beginning of this month the disease returned with some variation of symptoms, in consequence of taking cold. It had assumed a more acute character, than I had observed since the formidable symptoms gave way in the spring; and it might have been mistaken for pleurisy by a person unacquainted with the preceding circumstances. She had a severe cough, and a pain in the side, where the complaint had been before felt. She had much head-ache, sickness of the stomach and rigors. The pulse was 110.

I ordered a saline draught to be taken every four hours, and pills of extract. coloc. compos. and gamboge to be taken directly, and repeated according to circumstances once a day. Twelve ounces of blood were taken from the arm, which had the appearance of healthy blood: there was no size, and the texture was good. The bleeding afforded very little sense of relief from pain, which extended from side to side, but was felt acutely in the left side under the false ribs. There was no swelling perceptible externally. In this state of things the menses appeared on the 21st of November, and gave very speedy and almost perfect relief. The cough was gone: she had no head-ache or sickness: the pulse was reduced to 85. She was directed to take pills as before, of aloes and tartarized antimony.

At the end of this month, she was free from complaint. The pulse was at 80. She had a perspiring skin, and evacuated many stools every day. She was directed to continue the aperient pills.

It appeared to me that the disease was stopped in September by the evacuant medicines, and the appearance of the menses, and I considered it doubtful if the relapse would have occurred in November if she had not taken cold. The attack in November had the character of acute splenitis, in which the investing membranes were principally, if not wholly, the seat of the disease. This acute state was favoured by the increased irritability of the organ in consequence of its long suffering, and the continued application of necessary treatment; but it seemed to be the harbinger of a confirmed disposition to sound health in the part affected.

Since the end of the year 1810, this patient has remained well, with the slight exception of feelings of uneasiness in the side on the approach of the menses, which menstruation has always removed. But she considers that the pills of aloes and tartarized antimony have been, by their effect on the bowels during the last year, a security for the confirmation of her health.

Remarks on the preceding Case.

I have considered this case as affording an example of an advanced state of splenitis. It might be called the "Second Stage," when compared with that disease which I had the honor of describing to the Society as a case of "painful and turgid spleen" in its most simple state. In the earliest condition of this disorder the organ is swelled from the passive state of its vessels, which receive a greater proportion of blood than they can return. No fever accompanied this stage, nor was it the effect of fever, but an idiopathic affection, leading to inflammation, by tension and irritation of the membranes that invest the spleen. The means of cure were experienced to be active and daily evacuations, so persisted in as to become the probable occasion of disease, if they had not been essential to the removal of it. A considerable length of time is necessary to the cure of this affection, because it is dependent on the weakness and passive condition of the vessels of the spleen, and its duration must be in proportion as the return of their energy and contractile power is slow. If the second stage of splenitis be made free from danger, it

must require still longer time before it terminates in a cure than the first stage, as the disposition to a renewal of vascular swelling will be more confirmed by time, and show itself periodically.

The more advanced stage of this disease has been often described, and too often furnished the anatomist with observations after death.

In the second stage the pulse becomes quicker, and it is long, in convalescence, before it is reduced to its natural standard. The increased pulse is produced by painful irritation at first, and next by the actual tension of the membranes, proceeding to inflammation and adhesion of adjoining parts. The quickness of the pulse will assist in distinguishing the degree of progress of this disease, for it will be found, by reference to histories, that in a great proportion of cases, there was no warning of the growing mischief in its earliest stage; and that painful affection of the left side existed in many other cases, long before fever was induced, though these ended fatally.

In the first stage the patient can lie upon the left side, but not on the right side. In the second stage it is impossible to lie on the side affected. The spasmodic action of the diaphragm is more likely to come on in the second stage, and may be much aggravated by stimulant treatment. There is no emaciation in the first stage of a morbid kind, nor any considerable emaciation in the second stage, notwithstanding the large and continued evacuations. But in the third and last stage of splenitis, emaciation is always an attending symptom, combined with hectic or slow fever, particularly in middle-aged and elderly people. In this third stage diarrhœa supervenes, as well as dysentery, and discharges of grumous and dark blood take place, by vomiting and by stools: these discharges give temporary relief in many cases, and occur long before the final event.

Besides the two cases which I have submitted to the Society, it is right to observe, that I have seen the result of many others during the last three years, three of which occurred in young men and the majority in women. All these have con-

curred to show me in a satisfactory manner, that drastic purging, long continued, is the proper mode of treatment. By this practice a young woman has been relieved of a swelling of the spleen and epileptic fits at the same time. The fits began with the first symptoms of disease in the left side, and have disappeared for the last year, during which time she was gradually recovered from the swelling and pain.

Compositions of aloes and antimony were preferred in the cases that have been related, and generally in others, but not exclusively adopted: large doses of neutral salts have however appeared exceptionable when exhibited daily, as they have occasioned flatulence and depression. But aloes, extract of colocynth, and scammony with jalap, have acted without this inconvenience, and calomel has been combined with these, at intervals, producing more effectual discharges from the bowels: tartarized antimony in such minute doses, as not to puke, has always appeared to increase the beneficial effect of those combinations.

This idiopathic disease affects females more than males, and they have been always relieved in a signal manner by the flow of the menses: this fact may give rise to an idea somewhat speculative, but not without support, that a particular correspondence or sympathy of action, may exist between the spleen and the uterus. Each of these vascular organs has a structure which yields to extension and contraction with less disturbance of the whole habit than happens from equal changes in other organs; and wherever splenitis is relieved by nature or art, the inferior vessels of the body receive more than their usual quantity of blood, which passes from the uterus or the intestines: a fact agreeing with the 48th Aphor. of Hippocrates, lib. 6. "Τοισι σπληνωδεσι, &c. Splenicis dysenteria superveniens salutaris."

The progressive effects, and the complications of this complaint may appear after death; but it is obvious that no certain conclusions can be drawn from dissections respecting the two first stages of it, and particularly that the condition of the organ in the earliest and most simple state of its suffering cannot be proved by anatomical examination.

Splenitis, complicated with extensive visceral obstructions, has been very frequently the effect of remittent and endemic fever; but a tumid spleen occasioned by this cause, cannot afford any reasoning respecting the idiopathic disease, which in its progress will be distinguished by a hectic fever, of a very different character. The difference between such complicated affections and this simple disease will appear sufficiently manifest to those who consult the histories of Lieutaud and Morgagni, but particularly the recent descriptions of Dr. Davis in his treatise on the Walcheren fever.

Aretæus says, that the disease is fatal to elderly people, but that it is not so dangerous to youth. Dr. Heberden's later observations confirm the assertion of Aretæus respecting the tendency of the disease in people advanced to middle age, in whom it is fatal in six months.

It is very important at every period of life to distinguish the disease in its early stages; we are not to expect the presence of pyrexia, and external swelling, to make the case obvious. Pain of the left side, and inability to lie on the right side, are often the only signs, and if these two symptoms exist without fever, there cannot be much doubt respecting the seat of the disease, for a painful disease of any other organ of the left side would be accompanied with fever, and other symptoms of constitutional sympathy and irritation.

The spleen has been described very generally as a passive organ, and not readily sensible of inflammatory irritation. (See Dr. Pemberton.) This character can occasion little wonder, if the structure and economy of the spleen be well considered. (See Malpighi and Hakely, &c.) The absence of pyrexia in the early part of splenitis does not appear so remarkable as it does in cases of the strangulated intestine, in which Dr. Baillie says, "The pulse is sometimes not increased in frequency beyond the standard of health, and yet the inflammation of the bowels has been discovered afterwards by the operation to be very great."

It is impossible to say how far a continued application of purgatives might have answered in advanced cases, or in the first stages of cases, which ended fatally, as this practice has

not been followed in any instance within my knowledge. In a case detailed in the Edinburgh Journal, it was found that purging was the best means of relieving the patient, but it was only practised at intervals, and it was accompanied by the use of medicines which must have acted upon an opposite principle to that of evacuation, possibly counteracting its influence. Similar cases are to be found in Morgagni and Lieutaud; and it must appear from the result, that it was a third stage of splenitis when the ingenious writer first saw the case, the distinguishing character of the early part of the disease having been lost. The patience and insensibility of the organ is so remarkable, that changes that must have been of long standing, have been only discovered at the death of the patient.

A person met with sudden death from accident, and, as it is related in the "Acta Parisiensia," his spleen was found *stoney* in its internal structure without any other mark of disease.

Enlargements are recorded by writers to have existed without notice of the change, and fever or severe pain only came on to alarm the patients after a long period, though these diseases terminated in death.

It is therefore true in the distinguishing of splenitis, that the disease may have made great progress without observation. Pain may have been felt without swelling, and swelling without pain, and both may have existed without the pulse having been disturbed for a long period in the first stage of splenitis; but on dissection, the spleen, after such previous circumstances, has been found morbid, and the only diseased organ.

Cases of Cynanche Laryngea,

BY J. R. FARRE, M. D.

[From the Medico-Chirurgical Transactions, Vol. III.]

CASE I.

On Monday evening, the 13th of August, 1810, — Essex, aged 38, complained of a sore throat. On the 14th at noon, his respiration was affected, and in the evening it was loud and hoarse, and he was long in completing each inspiration. He could not sit still for many moments, but walked about the room in the greatest distress, often struggling for breath. Unable to lie down, he passed the ensuing night in the same restless and agitated state, with occasional delirium. On the 15th, the difficulty of his breathing was in no respect diminished. On the 16th, at four in the afternoon, a medical man observed the following symptoms: respiration performed with extreme difficulty; pallid face, protruding eyes; an anxiety difficult to be expressed; the uvula large, œdematous, and speckled, as if about to ulcerate; tonsils not affected; pulse laborious and frequent. The treatment had been hitherto limited to the use of cathartics, and the application of blisters to the chest and throat. A momentary relief was now obtained by taking twenty-four ounces of blood from his arm. At seven he was under the operation of a preparation of tartarised antimony and squills, which had excited vomiting, and was then acting on his bowels. The blood which had been drawn exhibited the appearances which are usual under active inflammation. At nine o'clock, when sitting up, he expired.

Morbid appearances twenty-four hours after death.

The velum palati, pharynx, and a portion of the œsophagus with the larynx, trachea and bronchiæ were carefully detached. The pharynx and œsophagus being slit down posteriorly, the mucous membrane investing the epiglottis, rima glottidis and the posterior part of the larynx, was found to be œdematous to so great a degree, as to make it evident that suffocation had been produced by stricture of the glottis. The tumefaction ceased at the junction of the larynx and trachea.

The internal mucous membrane was red and thickened. The traces of inflammation were less apparent in the trachea and bronchiæ, the membrane being irregularly reddened. No coagulable lymph had been effused on any portion of this membrane; and even its mucus was not changed. There was an appearance of slight congestion in the lungs; some adhesions of the right pleura existed, but these were not recent; the heart was natural, and the liquor pericardii slightly increased. Excepting an enlarged spleen, there was no disease of the abdominal viscera.

In this case the inflammation did not pass the stage of congestion in the mucous membrance of the trachea, and of serous effusion under the mucous membrane surrounding the glottis; but in the following, the inflammation went into the adhesive stage, and closed the glottis by the effusion of coagulable lymph.

CASE II.

A poor, but industrious and temperate man, about 60 years old, on Sunday the 31st of March 1811, was affected with a painful and difficult deglutition. On the following morning, April 1st, alarmed at his inability to swallow fluid, which, on the attempt being made, returned by his nose, he sent for Mr. Weston, who found the tonsils inflamed, and disposed to ulcerate. A brisk purge was ordered. At ten o'clock, on the same evening, his respiration suddenly became difficult, when Mr. Weston immediately drew from his arm thirty-two ounces of blood, which proved to be very sizy. In the course of an hour I attended, and observed the character of his disease at this stage. Although the tumefaction of the tonsils was inconsiderable, deglutition was extremely painful, and very difficult: respiration was performed with convulsive and long continued efforts: his voice was nearly inaudible, and he could only whisper. He answered my enquiry respecting the seat of his suffering, by putting his finger on the superior part of the thyroid cartilage. He felt no pain in the chest. All the muscles of respiration were thrown into violent action, and he lay with his mouth widely opened, pupils dilated, face

pale and sunken, skin covered with a clammy sweat, and his pulse at 133, and small. His powers were prostrate, and general bleeding could not be repeated. The anterior part of the throat was covered with leeches, but the disease never paused. At midnight, the operation of bronchotomy seemed to be the only resource; and soon after one o'clock, I decided on its employment.

About two o'clock, Mr. Astley Cooper attended, and as suffocation was instantly impending, the operation was immediately performed, by dividing, laterally, the ligament which connects the thyroid with the cricoid cartilage.* The dyspnœa was much relieved by the operation. He now lay passive, breathing by the natural and artificial apertures, and the inordinate action of the muscles of respiration had ceased. He swallowed some nourishment with a painful effort. In this state he passed the night, and the greater part of the following day. In the afternoon, the respiration by the natural passage entirely ceased, but was continued by the artificial aperture. He was now evidently sinking, and expired at six in the evening.

April 3d, eight o'clock A. M. Dissection by Mr. Astley Cooper.

The right tonsil inflamed and vesicated. The epiglottis swollen, its edges meeting behind, excepting just at the upper part. Pharynx inflamed, somewhat vesicated, covered with coagulable lymph about the epiglottis, but free from inflam-

* The following note, made by Mr. Cooper on the morning after the operation, he obligingly sent me with the drawing.

"I was called by Dr. Farre and Mr. Weston, at half past one A. M. on the 2d April, 1811, to a person aged more than sixty, who had Angina Pharyngea. He was gasping for breath; every muscle that could be brought into action to assist respiration was employed. He was seized with sore throat yesterday, and at ten o'clock to-night with dyspnœa, which has increased so rapidly that he appears to be dyeing; pulse quick, face and lips pale, pupils dilated.

"I began the operation by making a cut between the thyroid and cricoid cartilage, longitudinally, and then transversely into the membrane which united these cartilages. No vessel of the least importance was divided, and he breathed through the opening, so as to be immediately relieved."

mation near its termination in the œsophagus. The aperture which had been made between the cartilages, appeared to be about half the size of the glottis.

The mucous membrane of the larynx and trachea was pale.

There was some accumulation of mucus in the cells of the lungs, and a slight effusion of serum into their reticular texture. The left pleura partially adhered, and the cavities contained rather more fluid than is natural to them. The abdominal viscera were not examined.

I may be allowed to remark, that Cullen's character of his fourth species of cynanche will not embrace the cases which I have above described.

"Cynanche (Pharyngea) cum rubore in imis præsertim faucibus; deglutitione maxime difficili, dolentissima, *respiratione satis commoda*, et febre synocha."

The anterior part of the pharynx was indeed the seat of the inflammation; but that portion of the membrane being also common to the larynx, it may, in a practical sense, be useful to term the disease *laryngea*, because it proves fatal by constricting or actually closing the glottis, and constitutes precisely that case which, in its ultimate degree, imperiously demands the operation of bronchotomy.

APPENDIX.

When the cases of Cynanche Laryngea, which I had the honour to communicate to the Society, were read, the learned President, Sir Henry Halford, noticed the deficiency of communication in the various medical records respecting this form of cynanche, and briefly referred to the cases of Dr. David Pitcairn, and Sir John Macnamara Hayes, as instances of the same species. Respecting the former only of these distinguished physicians, was I at that time successful in obtaining the particulars which I wanted. In an interesting biographical memoir of Dr. David Pitcairn, published in the Gentleman's Magazine for April, and in the European for June, 1809, I read the history of the disease which deprived the world of

this excellent physician. A more valuable report, giving an account of both cases, has been recently presented to the profession by Dr. Baillie, in the third volume of the Transactions of a Society for promoting Medical and Chirurgical Knowledge.

The conversation to which my communication gave rise, has induced me to offer some observations on the diagnosis, and treatment of a disease which seems to be little known, and which assumes a more than usual interest from its having proved fatal to two physicians, notwithstanding their own practical knowledge, and the aid of the most eminent in the profession.

In all the cases of cynanche laryngea, the mucous membrane investing the epiglottis, glottis, and chiefly the external and posterior surface of the larynx, was the seat of the inflammation, by which the rima glottidis was so much narrowed, that the vital functions were actually extinguished by the stricture. It is true that the tonsils, the arch of the soft palate, the uvula, the tongue, the internal membrane of the larynx and trachea, all, or several of them were inflamed; but this was only an extension of the action to one common membrane which invests the whole, whilst it was most intense at the mouth of the larynx. In both the cases communicated by Dr. Baillie, uneasy sensations were felt in the larynx. In one of them, this symptom appeared at the accession of the inflammation, and strongly excited the patient's anxiety for the result, at a time when the apparent inflammation in the fauces was so inconsiderable, that upon a superficial observation it would hardly have been noticed. I did not see Essex alive; but the slight swelling of the uvula and tonsils which appeared on dissection, made it obvious that his disease could not have been mistaken for cynanche tonsillaris. In Case II. when I desired the patient to point out the seat of his suffering, he placed his fore-finger on the middle notch of the thyroid cartilage, to which the epiglottis is fixed. The difficulty of the diagnosis does not in fact lie between this inflammation and the cynanche tonsillaris, but between it and the cynanche trachealis. Dr. Pitcairn wrote on a piece of paper, that his

complaint was croup. Croup very nearly approaches the cynanche laryngea, but the difference between the seats of the inflammation will appear by comparing the symptoms and morbid appearances which belong to each disease. In the cynanche laryngea the symptoms are, uneasy sensation in the larynx, difficult and painful deglutition, partial swelling in the fauces, a supervening and perpetually increasing difficulty of breathing, inflammatory fever. In the cynanche trachealis there is a difficulty of breathing,* without any swelling in the fauces, or painful deglutition, the expirations, especially in coughing, are very shrill, the fever is inflammatory. In both, the voice is changed, and, in extreme cases, is suppressed; the termination is by suffocation.—The following are the morbid appearances: in the former, the mucous membrane investing the epiglottis and margin of the glottis is inflamed; serum is effused under it, or coagulable lymph on its *external* surface, by which the *rima glottidis* is narrowed, or actually closed. In the latter, the mucous membrane of the larynx and trachea is inflamed, and a layer of coagulated lymph is formed on its *internal* surface, from the extremity of the epiglottis to an indefinite extent within the trachea, by which the *tube* itself is narrowed, or actually closed. A puriform fluid, instead of mucus, is found in the trachea and bronchiæ. These characters chiefly apply to simple cases of both species, for as they differ in their seats, but not in their nature, it is possible for both forms to be combined in the same patient, and it were an easy matter to prove that a still greater extension of inflammation than this does actually take place in these organs.

In comparing the morbid appearances with the symptoms of cynanche laryngea, it is not difficult to determine that the inflammation, from its limited seat, from its not exceeding the bounds of the adhesive stage, and from the symptomatic

* The difficulty in the respiration is the symptom by which the danger must be estimated; for the ringing cough, without that adjunct, is of little importance. Many confound merely this symptom, which also not unfrequently occurs in the catarrhal affections of children, especially during dentition, with croup, which is, comparatively, a rare disease.

fever, requires the use of the lancet. I may be here allowed to give an unbiassed opinion; for in neither of the cases which I have described did I order general bleeding: the first, I have already stated, was not attended by myself; the second was not in a state to admit of this remedy when I was consulted. Both were bled, it is true, but it was done in the very advanced stage of the disease. When the function of respiration can scarcely be carried on, the body will not bear large bleeding; but although in the ultimate stage, the vital powers are greatly depressed by the copious abstraction of blood, yet on the accession of the inflammation this remedy seems to be less a matter of choice than of necessity. Dr. Pitcairn was bled once copiously on the third day, and died on the fourth. Sir John Hayes was thrice bled, to the amount, in the whole, of thirty or forty ounces, on the second day, and died on the fourth morning. In both these cases, it must be manifest to every one who reads the history of them, that the patients died not from exhaustion, but from strangulation. By those who will take the pains to consider inflammation as a process, it will be understood that it may be checked, but cannot be suddenly extinguished by the most active means; time must be allowed for the process to decline, even after the fairest efforts have been made to arrest its progress. Unhappily, this necessary time can rarely be obtained in this disease, in which the activity of the inflammation is expended on a small, but most vital seat; for the glottis once narrowed, may be closed by the local action, even after the general powers are prostrate.

These simple, and, I trust, natural views of the subject, lead to a treatment which must be varied according to the stages of the inflammation: the first, or stage of congestion, is the period for active depletion, on the accession of the disease, in the first twenty-four hours, as soon as the patient feels the slightest uneasiness in the larynx, or a very painful and difficult deglutition, which the apparent state of the fauces cannot explain. There is not in this stage any objection to copious general bleeding, suited to the strength of the patient; but if this treatment fails to relieve, and the difficulty of

breathing supervenes, it is too certain that the narrowing of the glottis has commenced. In this second and alarming stage, or that of effusion, it may be proper to try local blood-letting, by free cupping from the neck and shoulders, and by a continued oozing from numerous orifices made by leeches on the throat. In both stages it is reasonable to resort to those internal means which diminish the force of the circulation in the capillary arteries; and to produce this effect, none seem better adapted than the combined powers of the tartarised antimony and the submuriate of mercury, in doses suited to the strength of the patient.

In the advanced period of this second stage, when the glottis is so much narrowed that the signs of strangulation begin to appear, a perseverance in these or other ordinary means seem no longer to afford even a chance of preserving the life of the patient; his physician must now resign him to the horrid death of slow suffocation, or make a last effort to save him by the operation of bronchotomy. That the disease is a local one, that it is acute, and of short duration, that it affects a mucous membrane, which consequently does not readily take on the adhesive inflammation, or if it should be so acutely inflamed, easily sheds the lymph that had been effused on it, are circumstances which, in the otherwise hopeless state of the patient, justify a trial of this operation. But if it be further considered, that bronchotomy has actually preserved life under the more unfavourable disease of cynanche trachealis, the operation becomes expedient. And here I am happy to find that the resort to bronchotomy, in Case II. is supported by the opinion of Dr. Baillie, who had actually proposed this operation in one of his cases, which was only not performed because the surgeon arrived too late. He also enforces this opinion by the following advice. "If no substantial advantage is produced by this plan* in thirty hours, it might be advisa-

* Viz. At the very beginning of the attack, one copious bleeding until the patient faints, followed by the use of opiates, to remove the spasm, which, in his opinion, has some share in producing the difficulty of breathing.

ble to perform the operation of bronchotomy at the upper part of the trachea, just under the thyroid gland. This operation would probably enable the patient to breathe till the inflammation in the larynx, more especially at the aperture of the glottis, had time to subside."

Different parts of the windpipe have been selected for the operation by different surgeons. This seems to me a matter of considerable importance; but to enter upon it would lead me out of my province. It is more within the line of my duty to consider what forms of cynanche admit of the operation. In the cynanche maligna, the inflammatory action, which is vehement, effuses coagulable lymph on the tonsils, and, in the worst cases, on the mucous membrane of the larynx; but the strength of the action is soon spent, the lymph perishes, and the surfaces which effused it die, and slough, or open into ill-conditioned ulcers. In such a disease, if symptoms of strangulation supervene, it is almost needless to say, that bronchotomy is inadmissible. But the badly ulcerated or sloughing tonsils, with typhoid fever, sufficiently distinguish this malignant disease from the simple cases which demand the operation. In every uncombined case of cynanche laryngea, when other means have failed, I think that the patient ought to have the chance, even if it should prove a small one, which this operation affords. Every case of simple cycanche trachealis is so nearly allied, both in its nature and manner of proving fatal, to the cynanche laryngea, that the same mode of treatment, with a little modification, which is applicable to the one, is also suited to the other. But when the cynanche trachealis is combined with pneumonic inflammation, of whatever kind, then the operation cannot avail. In proportion as the inflammation is extensive, it is less intense in the larynx, and I think it is not difficult to discriminate between the cases, at the period when the operation is required, by the manner in which the respiration is conducted. In the one, the difficulty of breathing is evidently that of impending strangulation; in the other, that of deep seated and extensive oppression. The difference may, perhaps, be illustrated better by a case of each kind.

Case of Cynanche Trachealis.

——— Williams, a fine boy, at the age of two years and five months, was carried off by an acute disease in little more than forty-eight hours after the attack. The distressing and violent symptoms which marked its progress, and the rapidity with which it proved fatal, induced his mother to solicit me to ascertain, by dissection, the cause of his death. Previously to the examination, I minutely enquired into the circumstances of the case, and the following simple, but impressive history, is given nearly in her own words.

On the 8th of July, 1806, her attention was directed to the boy by his unusual hoarseness; his voice was gruff. He had also a peculiar cough, which a lodger in the house noticed, and said, it distressed him to hear it. But she was less on her guard, because the boy played as usual, and was quite cheerful: she applied, however, to a druggist, and purchased a mixture for his cough. On the following day his skin was hot; he was thirsty; his urine was high-coloured, and, on standing, copiously deposited a white sediment; his bowels were regular. His appetite was not yet impaired; at dinner he eat rather greedily a slice of pork, and some cabbage, and afterwards a great deal of fried meat; but at almost every mouthful, he said, water, mamma, more water. As the evening advanced, her anxiety on his account increased, and a nurse advised her to apply a blister to the upper part of the chest. Having complied with this advice, she sent for an apothecary, who told her that the child was in danger; that the blister was as good a remedy as she could use, and did not prescribe any thing else. The boy was yet playful, and at nine o'clock, whilst she held him in her arms, he remarked a kite in the air, and pointed it out to her. His breathing was then shrill and difficult. All the ensuing night his skin was very hot; he took no more food, but called for water continually. A noise attended every respiration, which she expressed by the monosyllables—flip, flap. It seemed to her that something was lifted up every time he breathed, and in striving to breathe, his head, body, and

limbs worked.* On the 10th all the symptoms were aggravated, the respiration became every moment more difficult; he coughed less, and spoke faintly; his lips, neck, hands, and the bottoms of his feet turned livid, his skin became cold, and he seemed to be insensible for an hour before his death, which happened at four in the afternoon.

Examination of the body on the twelfth, at six o'clock in the evening, fifty hours after death.

External appearances.—The body was very fat, and seemed to have been vigorous. The feet, hands, and lips, were quite livid; the posterior parts of the body much discoloured, but not so entirely livid as the former.

Thorax.—When the sternum was removed, the lungs, instead of collapsing as they usually do, remained turgid with air. On each side of the chest the pleura was free from adhesion, and there was no serous effusion. The cellular membrane of the lungs, opened by sections of different parts, was dry, except where bloodvessels or ramifications of the bronchiæ were dissevered: from the latter a whitish fluid issued. The pericardium contained very little liquor.

Throat.—The larynx, trachea, and larger branches of the bronchiæ were removed. On looking into the larynx, through the glottis, the passage seemed to be closed. The *external* mucous membrane of the larynx was not affected; but on cutting open the windpipe posteriorly from the rima glottidis to the subdivisions of the bronchiæ, a thick layer of coagulated lymph was found on the *internal* mucous membrane of the larynx, extending from the extremity of the epiglottis into the trachea, about a finger's breadth below the cricoid cartilage. The rest of the membrane lining the trachea and bronchiæ was visible, and of a red colour. The sacculi laryngis were completely concealed, the greatest deposition of lymph having taken place near this portion of the windpipe, by which it was so much narrowed, that there was scarcely room for the point

* This simple description of the mother sufficiently marks the continued muscular efforts, partly involuntary and convulsive, which were made to prolong respiration.

of a crow's quill to enter. It also contained a puriform fluid, some of which, lodged in the narrow passage within the coagulated lymph, gave the impervious appearance before noticed, and probably occasioned, by its ascent and descent during respiration, the peculiar noise which the mother described.

In the head and abdomen the appearances were those which belong to the most perfect state of the several organs.

This was a case of simple croup, in which the life of the child might probably have been saved by the timely performance of the operation of bronchotomy.*

* This operation having been performed frequently and successfully in cases of foreign bodies lodged in the windpipe, it may be affirmed that, under the circumstances which demand its employment, whilst it constitutes the only means of preserving the patient, it is in itself, the mere operation being considered, nearly void of hazard. It has not been so frequently performed in cases of Cynanche Trachealis. On this account I may be allowed to extract from the inaugural Dissertation of Dr. Thomas White, published at Leyden, in 1786, a most happy case of this kind. "Puer quinque annorum per duos vel tres dies signis Cynanches Trachealis laboraverat, cum medicus advocatus fuit. Ægrum invenit anhelum, fere strangulatum. Respiratio enim maxime fuit laboriosa, atque spiritûs emissio adeo impedita, ut vix flammâ facis speculove prope os admotis sentiri posset. Die Februarii undecimo, anno 1782, rebus ita se habentibus, emeticum hor. X. A. M. præscriptum fuit, atque omni horâ repeti jussum. Quot emetica devoravit, quidve vomitione ejectum, non didici; sed omnibus frustra usus est.

"Hor. ix. vespertinâ, nil remittente morbo, morteque ipsa minitante, complures chirurgi tracheam incidendam esse consentiebant; quod statim perfecit Domin. Andree. Incisione factâ, aer magna vi proruebat, respiratio protinus facilius absolvebatur, atque æger (cujus vox ante vix audiri potuerat) exclamabat, se nunc levatum, se nunc sanum esse. Tussis vehementissima per canulam argenteam, aut tubum cavum flexilem, (qui Gallicè Bougie vocatur) intra plagæ oras immissum excitata est, nec prius cessavit quam ea penitus fuerunt amota. Dein vulnus panno ex nebulâ lineâ confecto tegebatur.

"Die Feb. xiimo. delirium leve noctu supervenit. Spiritum nunc facilius ducit. Calor et pulsuum crebritas minuuntur.

"Die Feb. xiiimo. Nocte magna copia muci flavi pus referentis (qui a bronchiis plane excreari videbatur) e vulnere effusa est, totumque thoracem externè humectavit. Hodie facies, et præsertim musculi oris, levibus convulsionibus afficiuntur.

"Die Feb. xivmo. Pyrexia multo minor, facilis per os spiratio, vox quæ ad hoc usque tempus submissa ac stridula fuit, nunc ad tonum naturalem redire ncipit. Mucus minus copiosè ejicitur.

"Die

Case of Cynanche Trachealis, combined with Pneumonia.

Miss S., three years and a half old, had been for three days affected with a catarrh and hoarse cough. Her mother, during this period, had twice given her a tea-spoonful of antimonial wine, which had freely vomited her. The last dose was given on Friday evening, July the 7th, when Mrs. S. also applied a large blister to her breast. On the morning of the 8th the symptoms were much aggravated; she then gave her an infusion of senna, and at noon sent for Mr. Newington, who considered the disease to be croup, and prescribed one grain of tartarized antimony in one ounce of an infusion of senna, of which a third part was to be given every half hour, till it excited vomiting. He also ordered that two leeches should be applied to one of her arms. Meeting with Mr. Newington in the afternoon, he asked me to see the child. The respiration was performed with considerable difficulty,

"Die xvmo. Omnia symptomata leviora.

"Posthac nil dignum notatu occurrit; intra mensis unius spatium vulnus perfectè fuit curatum, ægerque ad pristinam sanitatem restitutus.

"Duobus abhinc annis valetudo permansit bona, nec ullum incommodum ab incisione expertus est puer."

The above interesting report seems to be deficient only in the particulars of the operation; and these, through the kindness of Mr. Astley Cooper, I have obtained. They are given in the words of Mr. Andree. "At nine in the evening, in the presence of several of the faculty, among whom was my esteemed friend Mr. Ford, surgeon, I performed the operation. The child being laid on his back, and kept as quiet as his great restlessness in struggling for breath would admit of, I commenced the operation by a straight incision from the thyroid gland towards the sternum, about one inch and a half in length. I then cautiously laid bare the anterior part of the trachea, without any material hemorrhage or difficulty, except what arose from the child's struggles. I then made a small transverse incision, or rather puncture through the membrane, which connects the second and third annular cartilages, and then a similar incision between the fourth and fifth cartilaginous rings; the respiration was immediately relieved. I now proceeded, according to the rules laid down by the most approved authors, and as myself had taught in anatomical lectures, to introduce a silver canula into the trachea through one of the orifices. It instantly produced a most violent and incessant cough, until the instrument was withdrawn. A hollow bougie being introduced, produced the same effect. I then contented myself with dressing the wound superficially, cutting an orifice in the plasters to correspond with the openings into the trachea, and covering the wound with a piece of gauze laid loosely on the neck."

but it was not noisy, nor was the cough so ringing as I have heard it in cases of Cynanche Trachealis. The character of a general oppression of the respiration, yet passive state of the child, as opposed to the convulsive and struggling efforts with which it is performed under a more complete obstruction of the upper part of the windpipe, in cases of simple croup, was striking. The child being of a vigorous habit, and the inflammation acute, it was proposed to draw six ounces of blood between the shoulders, by cupping. I did not visit this child again, but Mr. Newington communicated to me the following particulars: She was cupped, and in the evening a double quantity of the mixture, ordered in the morning, was repeated at four doses, without producing any other effect than great languor and cold perspirations. The breathing continued to be very laborious, but the cough was not so frequent. On Sunday morning, the 9th, before Mr. Newington saw her, her mother had given her a tea-spoonful of antimonial wine; she vomited a little, and in the course of the morning had three evacuations from the bowels. In the afternoon the antimonial wine was given in the dose of a tea-spoonful and a half without exciting vomiting. The countenance, which was at first very florid, had now become pale and languid; her pulse had lost its fulness and hardness. At seven in the evening he found her a little easier, but very languid. Her mother had administered, without his order, a tobacco glyster; about two scruples of the leaf had been infused for that purpose. On Monday her pulse was weak, and about 160, her breathing very difficult, her head thrown back, her face pallid. She was perfectly sensible, and swallowed some milk in a hurry, as if in danger of being strangled. A squill mixture was given, and brought up some viscid mucus. In the evening the frequency of pulse and general languor had increased, her lips were slightly livid, but the rest of the countenance was pale, and about twelve o'clock at night she died.

July 12, 1809, the body was examined by Mr. Astley Cooper, in the presence of Mr. Newington and myself, and I noted the following particulars.

External appearances.—The general aspect was pallid. The growth proportioned to the age, and the abundance of fat proved the previous vigour of the child, and that she had been cut off by a very acute disease.

Thorax.—The right cavity of the chest being laid open, a dark coloured fluid appeared in considerable quantity. It had not the character of an effusion from an inflamed surface. A particular examination ascertained that the œsophagus had been acted upon by the gastric fluid, which had also destroyed the pleura posteriorly, and thereby admitted of an exudation of blood from the lung, which, together with some of the contents of the stomach, and probably some prior serous effusion from the pleura, made up the quantity of fluid. The left cavity contained a little serous effusion. A partial exudation of coagulable lymph, on some parts of the surface of the pleura, had made it somewhat rough, impairing that polished surface which is natural to the healthy membrane. The pericardium and heart were not affected. The tongue, pharynx, œsophagus, larynx, trachea, and lungs were removed together. On cutting open the windpipe posteriorly through its whole length, its membrane was found besmeared with a brownish mucus, under which it was every where covered with a thin coat of coagulated lymph, that extended into the ramifications of the bronchiæ, but was no where in sufficient quantity to close the pipe: even in the larynx the sacculi were apparent. The lungs had suffered excessive congestion; their parenchyma was very generally red and tumid, yet they floated when thrown into water. The effusion, therefore, into their reticular texture was serous, but the air-cells and minute ramifications of the bronchiæ were loaded with a yellowish white fluid, the secretion of an inflamed mucous membrane.

Abdomen.—The stomach had been extensively acted upon by the gastric fluid, and in many places was in a state of dissolution. The other viscera in this cavity were not minutely examined—their general appearance was healthy.

The head was not opened.

This was a case of croup, combined with extensive catarrhal and pneumonic inflammation, in which the operation of bronchotomy was incapable of benefiting the patient.

On the Nature and Detection of different Metallic Poisons. By Mr. Charles Sylvester, of Derby.

[From Nicholson's Journal, No. 154.]

I. *Arsenic.*

As a poison the most virulent, and, at the same time, the one most to be dreaded, from its extreme insipidity, and the consequent readiness with which it may become an instrument in the hands of a murderer, or be received into the system by accident, is the white oxyde of arsenic. For the detection of this substance, when thus admitted, various processes have, at different times, been recommended; and the papers of Dr. Bostock, published in the 5th volume of the Edinburgh Journal, have, very generally, been thought to contain the best directions for this purpose. After various experiments, he decides in favour of sulphate of copper and carbonate of potash, which precipitate the white arsenic under the form of *Scheele's green.* It cannot fail to have occurred, however, to every one who has repeated these experiments, that the phenomena produced in this process are much too ambiguous to enable a man, where the life of an individual is at stake, to swear positively that arsenic has been detected in his operations. The alkali employed, whether arsenic be present or not, uniformly occasions a precipitate, by detaching the oxyde of copper from its combination with the sulphuric acid. The colour of the deposit, it is true, is not absolutely the same in both cases; but when it is recollected, that experiments of this kind are, for the most part, conducted on solutions coloured to a greater or less degree from the matters found in the stomach or intestines, this minuteness of distinction will be deemed scarcely appreciable by the eye even of the most experienced operator. Such uncertainty ought, most assuredly,

not to attend investigations of this nature; and the process of Dr. Bostock, therefore, becomes objectionable from this circumstance.

The method of detecting arsenic next deserving of remark, is one lately recommended by Mr. Hume, of London. It consists in adding a quantity of subcarbonate of soda to a solution suspected to contain this metal; and afterwards presenting to it a small piece of nitrate of silver. It is far preferable, Mr. Hume finds, to employ the latter salt in the solid form; and he recommends an angular piece, of the size of a pin's head, or thereabouts, held at the surface of the fluid, on the point of a knife. The existence of arsenic will be shown by a yellow precipitate, which falls down in rather abundant quantity. Whenever arsenical mixtures are operated upon, which have but little contamination with foreign ingredients, this process will, undoubtedly, succeed very well; but if ever muriatic acid be present, and this is always the case where materials from the stomach are mixed with the fluids under experiment, the test is then wholly useless, as a muriate of silver will be immediately formed, and the yellow compound, said to be so unequivocal in its indication of arsenic, of course be prevented from appearing. Neither of the processes yet spoken of, therefore, can receive that confidence, which ought to attach to investigations of such high importance. This is not a mere speculative difficulty, but was fully proved to me during a course of experiments made some time ago, in consequence of a case of poison which came under my notice; and having, with the assistance of my friend, Mr. James Oakes, devoted, at that period, a good deal of attention to that subject, with a view, if possible, to supply the deficiency, we were led to the use of two re-agents, which, I think, will not only be found free from the objections applicable to those already mentioned, but appeared to combine most of the advantages requisite in operations of such extreme delicacy. The re-agents employed were the acetate of copper, and oxyacetate of iron. For the preparation of them it is merely necessary to decompose oxysulphate of iron, and sulphate of copper, by acetate of lead, adding the latter until a turbidness ceases to appear.

The resulting mixtures should contain as little of the ordered ingredients in combination as possible; particularly the iron test; since an excess of the oxysulphate, as was observed in our experiments, suspends the action of the acetate, and prevents its combination with the arsenic. The presence of acetate of lead is objectionable, from causing a precipitate with arsenic, which cannot be distinguished by the eye from sulphate of lead. When the two acetates are properly prepared, they combine with arsenic with considerable facility; that of iron producing a bright orange yellow deposit, and that of copper, green. The decomposition, however, especially of the former, does not appear to be complete till they have been suffered to stand a few seconds. One of the great advantages attending these re-agents is, that their action is independent of the use of alkali, which, in the two former processes, from the precipitate uniformly occasioned by its presence, throws considerable uncertainty over the results of an experiment; and where the mixtures are coloured, as will always be the case, in a greater or less degree, in examining the contents of the stomach, must rob these methods of the whole of their value. With the tests here recommended, the *colour* of the compounds produced is not of that primary importance; for, since almost all their combinations, particularly those of copper, are soluble in water, except the one produced by an union with the white oxyde of arsenic, the appearance of any precipitate may, without much risk, be referred to the presence of this metal. Of the two, experience has confirmed us in a preference of the acetate of copper, partly from its more sensible action on arsenical mixtures, and in some measure, also, from the easier mode of preparation. As the oxyacetate of iron, however, may sometimes be occasionally resorted to, in order to afford additional evidence of the accuracy of an experiment, it may be necessary to add, as a farther direction for its preparation, that the oxysulphate from which it is obtained should be made by dissolving iron *with the aid of heat* in nitric acid, afterwards precipitating the oxyde, and re-dissolving it in sulphuric acid. The salt thus formed contains the metal at a *maximum* of oxydation.

The whole of the above processes for the detection of arsenic, of course, refer to the cases where it has been exhibited only in a fluid state. When it can be accomplished, however, by far the most satisfactory means of arriving at a knowledge of the presence of this substance, is to reduce it to a metallic state, which may be readily effected, either by subliming it in a glass tube with the aid of charcoal, or exposed between two plates of copper, according to the plans recommended in chemical works.

II. *Corrosive Sublimate.*

For the discovery of corrosive sublimate, the methods almost exclusively resorted to until very lately, were its precipitation by means of one of the carbonetted fixed alkalies, or by lime-water, which detach it under the form of an orange-coloured, or orange yellow, sediment. Dr. Bostock has since recommended muriate of tin; but, to the use of this test there is considerable objection, inasmuch as a precipitate, very similar in appearance to the one obtained from mercury, is always occasioned whenever muriate of tin comes into contact with a solution containing water. This could not fail to render the result of any experiment ambiguous; but should it so happen, that, from a particular circumstance, the employment of the muriate might be rendered at all desirable, its effect upon the fluid suspected to contain corrosive sublimate should be collated with the appearance produced from its mixture with an equal quantity of water, since the precipitate occasioned in a mercurial solution is remarkably more abundant than in the latter case, and sufficient to dispel all uncertainty arising from this cause. But a test, at once the most easy of application and satisfactory, is furnished by means of galvanism, in which the mercury is separated in a metallic state. This experiment can be made by any person, and almost in any situation. It is merely necessary to take a piece of zinc wire, or in its absence a piece of iron wire, about three inches in length, bent twice at right angles into a shape something like the letter U, but with a flattened bottom.* Its width

* The Greek Π is no doubt the figure intended.

should be about equal to the diameter of a common gold wedding ring; and the two ends of the bent wire must afterward be tied to a ring of this description. This being accomplished, take a plate of glass not less than three inches square, lay it as nearly horizontal as possible, and on one side drop some sulphuric acid, diluted with about six times its weight of water, till it spreads to the size of a half-penny. At a little distance from this, towards the other side, next drop some of the solution supposed to contain corrosive sublimate, till the edges of the two liquids join together. After this is done, let the wire and ring, prepared as above, be laid in such a way, that the wire may touch the diluted acid, while the gold ring is in contact with the suspected liquid. If the most minute quantity of corrosive sublimate be present, the ring, in a few minutes, will be covered with mercury on the part which touched the fluid. It might be proper to filter the mixture before submitting it to experiment, or otherwise, to pour it clear to the top; since calomel, which is so frequently taken as a medicine, might possibly be present, and give rise to these appearances. The insolubility of this substance, however, enables us easily to avoid it by the precautions here suggested.

III. *Lead.*

Although lead is not so virulent a poison as either arsenic or corrosive sublimate, its effects upon the animal economy are so greatly to be dreaded, that those liable to its influence in manufactures or domestic life, cannot be too much cautioned against it. The use of lead, in the construction of water cisterns, pumps, and conduit pipes, would, at first thought, appear highly objectionable; and in many instances it is, no doubt, productive of injury. The reason of its not being uniformly so, has been ingeniously pointed out by Guyton de Morveau. Most mineral waters contain a greater or less quantity of some salt formed by sulphuric acid. This acid is not only the means of precipitating any lead which may happen to be dissolved in the water, but has the effect also of completely coating the anterior surface of the vessels with the sulphate thus formed, which is a substance not liable

to decomposition, and therefore defends the lead from all future action of any solvent in the mineral water.

The dreadful disease called the *Devonshire colic*, was clearly shown by Sir George Baker to be occasioned by the lead constituting the lining of the cyder press, and other vessels, and which was dissolved by the acetic acid developed during fermentation. The acetic acid is here asserted to be the solvent, because the malic acid forms a salt with lead which is insoluble.

The effects of this metal have been still more conspicuous in its use by wine merchants, to correct the acidity of wine. The practice was at one time so common in France, that in a particular year, when much sour wine prevailed, many thousands of people are said to have fallen victims to its influence; and had it not been for the interference of government, it is impossible to say how widely this dreadful evil might have extended itself.

In the new rum of our West India colonies, the presence of lead has been marked by still more dreadful consequences. It became a matter of great surprise, however, that, after this liquor had been kept in a cask for twelve months, it lost its deleterious qualities. The lead employed in the vessels for the manufacture, but more especially in those for the distillation of rum, could not fail to introduce this metal in great quantity through the medium of the acetic acid, which is a constant product of fermentation; and had it not been for a circumstance about to be mentioned, it is difficult to conceive where the calamity might have terminated. Nature, however, in the shape of accident, stepped in as mediator, and redeemed the lives of those destined to drink the fascinating potion. It was before observed, that the rum lost its poisonous property by remaining a certain time in the cask; yet, although the fact was known, and the evil remedied, many years ago, I am not aware that any one has accounted for the change produced in the liquor. About two years since, my friend, Dr. Forester, of this place, gave an interesting lecture, on behalf of the Literary and Philosophical Society, upon the subject of poisons; and it was not till then, that I became ac-

quainted with the curious facts abovementioned. It immediately occurred to me, that gallate of lead was insoluble; and I lost no time in making some experiments, to ascertain the fact. The method by which I prepared some gallic acid for the purpose may, perhaps, be new, and not wholly uninteresting, to some of your readers. My first step was to make a strong tincture of nut-galls in proof spirit. To this was added, by little at a time, a nearly saturated solution of isinglass, till the whole of the tannin was precipitated. The liquor separated from the coagulum at first appeared rather opaque, but without colour. By standing at rest for a few days, a deposition of flocculent matter took place, consisting of gelatine and tannin, which left the liquor transparent and colourless. This I considered as a solution of gallic acid, nearly pure. At all events, it did not contain any substance which prevented its being an excellent test for iron or lead. I soon found, that in very dilute solutions of lead, where sulphuric acid, or a sulphate, produces no visible precipitate, the presence of this metal was made sensible by the aid of the gallic acid. This confirmed my suspicions on the subject, and left me in no doubt as to the real cause of the rum losing its pernicious qualities; for, since the joint existence of lead and gallic acid in any fluid is impossible, from the formation of an insoluble gallate, the lead of the rasa becomes precipitated by the gallic acid furnished by the oak cask. These facts supply an excellent, though indirect, method of ascertaining, in many instances, whether lead be dissolved in wines. If, on testing the wine with iron, it is found to contain gallic acid, we may safely infer, that no lead is present; but if no gallic acid be detected, then either this acid, or the sulphuric, may be added, which will precipitate the lead in the form of a white powder. Sulphuret of potash, or lime, may also be employed, which will occasion a blackish deposit.

The prevailing use of lead in dairies is very objectionable, especially when the milk is immediately used as an article of food. On the separation of the curd and butter, the dissolved lead will, no doubt, exist in the whey. When milk is kept too long in warm weather, the acetic acid is formed, which takes

up the lead; and it is a fact well known in dairies that milk remains sweet longer in leaden vessels than any other. This is, mistakenly, attributed to the *coolness* of the lead; but the true cause is as abovementioned. The evil would, in all probability, be much more considerable, were it not for the presence of the sacchalactic acid, which takes the lead from the acetic acid, and forms an insoluble compound.

IV. *Copper.*

The only other metallic substance likely to be taken into the stomach is copper; and for this the beautiful blue colour produced in its solutions by pure ammonia, is the most decisive and satisfactory evidence that can be required.

As a general re-agent, either for the present metal, or for lead, mercury, or arsenic, none, in point of delicacy, can exceed liquid sulphuretted hydrogen. It detects the smallest quantity of metallic matter present in any mixture; and though the coloured media, in which the experiments of this sort are generally obliged to be made, prevent that reliance upon the mere colour of a precipitate requisite to give this test an exclusive preference; yet it may frequently abridge the labour of an operation very considerably, and at once decide whether the poison has been metallic or otherwise. In conducting this sort of experiments, the recommendation of Dr. Bostock, to view the result by *reflected*, and not by *transmitted*, light, is highly important; and in no case, perhaps, ought a decision to be given without comparing the effect of every test on the suspected mixture with the phenomena it presents in fluids of known composition.

Observations on Diabetes Insipidus. By John Bostock, M. D. of Liverpool.

[From the Medico-Chirurgical Transactions, Vol. III.]

Diabetes Insipidus, when existing as an idiopathic disease, is of such rare occurrence, that I presume the following case, which appears to me to be entitled to this appellation, will not be uninteresting to the Society.*

Mrs. ———, aged 50, about four years ago was under my care for a violent and long continued attack of menorrhagia, by which she was much reduced in her strength, but which was finally removed, and was followed by a total cessation of the menstrual discharge. She considered herself well, although a great degree of weakness remained; she complained of being

* The rarity of the disease is very decidedly proved by this circumstance, that since the time of Willis, who first pointed out the sweetness of the urine, scarcely any distinctly detailed case of diabetes insipidus is on record. Cullen, with that degree of scepticism which is so characteristic of a philosophic mind, hesitates whether he should admit its existence, yet he informs us that he had seen one case in which the urine was not saccharine.* The two cases related in Dr. Rollo's work, in which a large quantity of watery urine was evacuated, were consequent to a local injury of the kidney, and therefore do not belong to this class.† Nor do I regard the case in Dr. Duncan's annals, as entitled to the appellation of diabetes; it was attended with profuse perspiration, and it may be inferred from the remarks, that the appetite was impaired.‡ The only reference made by Cullen is to Lister; but upon an examination of this author, I think it will be found, that he believed in the existence of diabetes insipidus, merely upon hypothetical grounds. What a contrast does the prudent caution of Cullen present to the hasty decision of Sauvages, who peremptorily declares, that all the diabetic cases of the ancients were insipid, because they do not mention the sweetness of the urine, while it is admitted, that ever since the time of Willis, all the cases have been saccharine.§ In referring to Lister, it may be proper to observe, that the opinion which has been brought forwards with a certain air of novelty, of the stomach and not the kidney being the primary seat of the disease, was implicitly declared and defended by this author a century ago.||

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* First lines, 4. 85. Synop. 2. 246.

† P. 224, 5.

‡ Duncan's Ann. 1801. 390. 1802. 361.

§ Nos. Meth. 2. 384.

|| Exerc. Med. p. 74.

much fatigued after using the least exercise, and remarked, that although her appetite was good, yet that her food never appeared to give her any support. The general weakness and the peculiar state of the stomach increased upon her, and at length became so marked, that I was again called upon to visit her. The symptoms which she described, immediately led me to suspect diabetes, and I found that the quantity of urine passed was much greater than natural, and that the calls in the night were so frequent as materially to injure her rest. I learned, that for some weeks she had suffered from an unusual degree of scurviness of the head, so much so, that it appeared every morning as if the whole cuticle were removed, and if the hair was not daily cleaned, the part was affected with the most intolerable itching. The whole surface of the body felt dry, and particularly the palms of the hands, but I did not perceive any eruption, except on the hairy scalp, or its immediate vicinity. Although the skin was frequently hot, yet she assured me that she never perspired.

The average quantity of urine passed by this patient in 24 hours, was five quarts; an ounce measure of it, which I examined, weighed 492 grains: therefore the whole quantity evacuated would be exactly 10$\frac{11}{4}$lbs. Troy. It was pale and nearly transparent; it had a faint odour; it slightly reddened litmus; and the specimen upon which the following experiments were made, had the specific gravity of 1.034. The residuum, which was left by slow evaporation, in its physical properties did not seem to differ from the extract of healthy urine. It appeared, by a simple calculation, that she was discharging between nine and ten ounces of solid matter in the 24 hours; this may be estimated at about 8$\frac{1}{4}$ ounces more than that evacuated in the healthy state, while the excess of water above the natural quantity would be about 7lbs. Troy.*

* The weight of the entire urine in the healthy state, and the proportion of the solid contents to the watery part, can only be obtained by an average estimate, and that subject to great uncertainty, in consequence of the numerous circumstances which produce a variation both in the quantity and the quality of this excretion. Haller, with his accustomed diligence and accuracy, has collected a great number of authorities with respect to

The constituents of the urine were then more particularly examined. A quantity of the extract was digested in alcohol, and when all was removed that the alcohol was capable of dissolving, the fluid was evaporated. The part left by the evaporation of the alcohol, was to the part which the alcohol did not dissolve in the proportion of 17 to 4; and as the former of these consisted principally of urea, it appeared to be in this case rather more than four times the weight of the saline substances. By referring to the quantities mentioned above, it will be found, that this patient was discharging daily about $7\frac{1}{2}$ ounces of urea, and nearly 2 of different saline substances. I could not discover any portion of sugar in the urea, nor did I observe any thing peculiar in the nature of the salts.

With respect to the proportion which the animal matter in the urine bears to its saline ingredients, the statements of different writers are completely at variance. MM. Fourcroy and Vauquelin say, that the salts form only $\frac{1}{20}$ of the weight of the extract,* while Mr. Cruikshanks informs us, that they amount to about $\frac{3}{5}$ of it, or, more exactly, that they are to each other as 315 to 220.† It is not impossible, or even improbable, that the urine may differ from itself so much in dif-

the quantity of the urine, from which he fixes it at 49 ounces daily. But in forming this estimate, he has not exercised that judicious discrimination for which he is generally so conspicuous; after stating the different quantities that are given by different writers, (which vary from 28 to 64 ounces,) he takes the general average, regarding the number more than the weight of his authorities.* The observations which appear to me by much the most accurate, are those of Rye, who fixes the quantity at 40 ounces.† The proportions which have been assigned for the water, and the solid contents of the urine are as various as those respecting the entire quantity. Haller has collected different estimates, which make the water from nineteen-twentieths to forty-nine fiftieths.‡ Mr. Cruikshanks informs us, that the extent varies from one twenty-seventh to one thirty-sixth in the healthy state;§ perhaps we shall not be far from the truth, if we take the average at about one-thirtieth.

* Ann. Chim. 31. 68. † Rollo, p. 439.

* El. Phys. 26. 4, 6.
† App. to Rogers on Epid. Diseases.
‡ El. Phys. 26. 3, 14.
§ Thomson's Fourcroy, 3. 315.

ferent states of the body, as that both these accounts may be correct, as applying to extreme cases; but granting this to be the case, they still give us no idea of the average condition of the fluid. The results of two experiments, which I made with a good deal of attention, were, that in the first, the salts were to the urea as 13 to 69, and in the second, as 24 to 79; the average of these is as 1 to 4, a proportion which is not very far from the medium between the estimates of the French chemists and Mr. Cruikshanks. Supposing that the whole of the solid contents in the healthy state, amount to 600 grs. the urea will compose 450, and the salts 150 grs.; my patient was therefore discharging daily above 6 ounces of urea, and above $1\frac{1}{2}$ of salts more than the natural quantity. Such a waste of the system, may point out to us the final cause of the increased appetite for food, and the excessive thirst, which form some of the most characteristic symptoms of diabetes.

In endeavouring to detect the presence of sugar in this urine, I employed the action of nitric acid, and concluded that there was no sugar, because no oxalic acid was formed. In order to try how far this method of reasoning was correct, a quantity of pure urea, prepared from healthy urine, had $\frac{1}{10}$ of its weight of sugar added to it, and upon it was poured 6 times its weight of a mixture of equal parts of nitric acid and water, and heat was then applied. When it had been boiled to the consistence of a thick syrup, and was beginning to assume a dark colour, showing that the nitric acid was separated, it was removed from the lamp; in a few hours crystals were formed, which, after being dissolved in water and recrystallized, seemed to consist of pure oxalic acid.

With respect to the treatment which was adopted in this case, I shall make only a very few remarks. As the urine was not saccharine, animal diet was not prescribed, and those remedies only employed which were supposed to have the power of strengthening the digestive organs, and reproducing a healthy state of the skin. For the former purpose the preparations of iron were chiefly relied on, and for the latter the warm bath; but I suspect that the morbid symptoms were so far connected, that whatever tended to relieve the one, was likewise benefi-

cial to the other. The result was completely successful; the constitutional affections disappeared, the urine was reduced to the natural standard, and the surface regained its healthy action. The patient has remained well for above 12 months.

To the case that has been now detailed, I conceive the appellation of diabetes is strictly applicable; it possesses the three pathognomonic symptoms of the disease, the increased appetite for food, the suppression of the cutaneous discharge, and especially, the evacuation from the urinary organs of a larger quantity than ordinary of animal matter. This latter circumstance is essentially different from the mere increase in the quantity of water, a morbid state which has been often confounded with diabetes, but from which I regard it as totally dissimilar. The quantity of matter discharged from the urinary organs, when the disease is fully formed, or exists in an aggravated state, is so considerable, as to increase the specific gravity of the fluid, notwithstanding the great increase in its quantity.* In this case it appeared, that the specimen upon which the experiments were made, which was obtained after the patient had been for some time without evacuating the bladder, had its specific gravity considerably increased, although the average specific gravity of urine passed during the 24 hours, was not above the ordinary standard. Although cases of diabetes insipidus have been so seldom noticed, yet I am disposed to believe, that it is a more frequent occurrence than is generally imagined. It it seldom that the attention is directed with so much minuteness to the urinary discharge, as to enable the practitioner to ascertain the nature of its ingredients; and should the increase of its quantity be noticed, it is thought to be accounted for, by the increased quantity of fluids that are employed to allay the thirst.

We are perhaps not able to decide with perfect certainty, whether this disease be the commencement of the diabetes mellitus, or has a tendency to terminate in this state. I conceive, however, that the opinion is in itself probable, and it appears to be strongly confirmed by a case which occurred to

* Henry in Medico-Chirurg. Trans. II. 119.

Dr. Lewin, of Liverpool, the particulars of which he communicated to me, and upon which, at his request, I made some experiments. The patient was a middle aged female, and had a variety of complaints indicating general debility, and a decayed state of the digestive organs, which led him to suspect the existence of diabetes; and upon enquiry, he found that the urine was rather more copious than natural. He sent me a quantity for examination, the general results of which were as follows. It was somewhat opake, and of rather a browner colour than natural; by standing, it deposited a sediment, and then became more transparent. The different reagents produced nearly the usual effects, except that the scaly crystals, formed by adding nitric acid to the urea, were less distinctly visible than ordinary. I thought the odour of the urea was less urinous than natural, but I was unable to procure from it any oxalic acid by heating it with nitric acid.

Dr. Lewin afterwards sent me a second specimen of urine, discharged by the same patient, the properties of which were, in several respects, different from what I had before examined. It was more opake, and deposited a greater quantity of sediment, its odour was sourish, and scarcely urinous. The extract produced by a slow evaporation, instead of being granulated, was of the consistence of a thick syrup, and when nitric acid was added, the scaly crystals were only imperfectly formed, and mixed with a quantity of uncrystallized matter. This half crystallized mass had a fresh quantity of nitric acid poured upon it, and the heat of a lamp applied; a brisk effervescence was excited, and a vapour disengaged, which had the odour of nitro-muriatic acid. The process was continued until the fluid was nearly evaporated, and a mass was obtained, which, when cold, resembled candied honey. This was dissolved in water and partly evaporated, and in 24 hours some fine spicular crystals were formed, which produced a copious precipitate with lime water, and exhibited every property of oxalic acid. The result of this examination appeared to me so important, that I was desirous of having it confirmed by Dr. Henry, and I accordingly sent him a quantity of the solution of the honey-like substance. He replies to me as fol-

lows: "The smaller phial unquestionably contains oxalic acid, as I determined not merely by the fact of a precipitation, but by examining the precipitate, which, in all its characters, answered to oxalate of lime."

To Dr. Lewin's sagacity in detecting the nature of the disease in this early stage, we may consider ourselves as indebted for the important fact, that a small quantity of sugar can exist in urine along with a large quantity of urea.* The case is almost equally decisive in favour of the conversion of the insipid, into the saccharine diabetes, and renders it probable that the two states alternate with each other, until, as the constitution becomes more and more impaired, the saccharine state of the urine predominates.

I have referred above to that morbid state of the urinary discharge, in which a large quantity of fluid is evacuated, but in which the animal matter exists in less proportion than natural. Such cases have generally been considered as diabetic; but I am disposed to doubt the propriety of the denomination, and to regard them either as the sequel of proper diabetes, or as affections of a totally different nature, perhaps originating in a disease of the kidney.† A remarkable instance of a large discharge of watery urine lately occurred to Dr. M'Cartney, one of the physicians to the Liverpool Infirmary, who sent me some of the fluid for examination. Upon pouring it from the bottle in which it was contained, it seemed so very unlike urine, that I concluded there had been some mistake respecting it, and requested that a fresh specimen might be procured. It appeared, however, that my suspicion was without founda-

* The fact here stated is precisely the converse of that advanced by Dr. Henry; he discovered that a small quantity of urea can exist in urine with a large quantity of sugar, while I have detected a small quantity of sugar united to a large quantity of urea. These facts may be considered as mutually illustrating each other, and become more interesting by their contrast.

† I gave an account of a case of this kind some years ago, which I called diabetes insipidus, but as I now conceive, incorrectly.—Mem. of Lond. Med. Soc. VI. 258.

tion, for I received a second quantity, which exhibited exactly the same properties with the first.

It was nearly without colour and smell, slightly opake, neither acid nor alkaline, and had a specific gravity not much superior to that of water.* At the time when the patient was discharging $4\frac{1}{2}$ quarts in the 24 hours, the solid extract amounted to no more than $\frac{1}{110}$ part of the weight of the fluid. The action of nitric acid upon the extract produced a kind of spongy mass, in which the scaly crystals were scarcely, if at all, perceptible, nor was any oxalic acid formed when an additional quantity of nitric acid was heated with it. The oxymuriate of mercury threw down a slight flocculent precipitate, which was rendered more dense by boiling, but no effect was produced by heat alone, nor by the addition of tan. The other re-agents, commonly employed to detect the salts of the urine, threw down precipitates, which seemed to be in the usual proportion to each other, but in smaller quantity than ordinary. Heated alcohol dissolved about $\frac{1}{3}$ of the extract; the alcohol, upon being evaporated, left a brown substance, which in its external appearance bore a resemblance to the urea, but which was found to differ from it in being reducible by a moderate heat to a dry state, when it assumed a kind of crystalline appearance. Nor did it produce any of the scaly matter with nitric acid. Upon the addition of this substance, there was a considerable effervescence, and the extract was converted into a spongy mass, that appeared to be composed of very minute cubical crystals, of nearly a white colour. That part of the extract, which was not soluble in alcohol, was chiefly dissolved by water; but a portion was left, which, when separated and dried, had the appearance of a fine black carbonaceous powder: it composed about $\frac{1}{7}$ of the mass which was not soluble in alcohol. The composition of the extract would therefore be nearly as follows: 63 parts of a saline mass, which seemed to consist of the usual muriatic and phosphoric salts, 26 parts of an animal matter, and 11 parts of the carbonaceous

* Dr. Henry, to whom I sent a specimen of this urine, estimated the specific gravity at 1.0058.

powder. The urine soon acquired a nauseous smell, became slightly alkaline, and deposited a small quantity of a flaky sediment; but it afterwards remained for several months exposed to the atmosphere, without experiencing any farther change.

I relate this case rather as exhibiting a singular and curious state of the urinary discharge, than as directly leading to any physiological conclusions. One circumstance, however, is worthy of notice, that in this, as well as in the case of watery urine which I formerly published, the deficiency of the salts is not so considerable as of the animal matter. In this respect the urine seems to be analogous to the albuminous fluids of the body: for in the elaborate experiments of Dr. Marcet, which have been related to the Society, the salts were always found nearly in the same quantity, however various was the proportion of the animal matter; a circumstance which coincides with my own experiments on these substances.

Knotshole Bank, near Liverpool,
April 18, 1813.

Experiments on the Extract from Diabetic Urine.

The following train of facts, although not immediately connected with the subject of the above paper, I consider not undeserving the notice of the Society, as tending to throw some light upon the nature of the extract procured from the urine of diabetes mellitus.

About eight years ago, I procured some diabetic extract from urine, which was so highly saccharine, that by mere evaporation at a low temperature, the whole was converted into a dry substance, of a granulated and half crystallized texture, which in its appearance very nearly resembled fine brown sugar. It remained for a long time without undergoing any alterations; but having been placed in a damp room during the last winter, upon examining it some weeks ago, I found its appearance entirely changed. The paper containing it, which consisted of several folds, was covered with a thick coating of mould, not unlike the mould of cheese. The sub-

stance that remained within the paper was much diminished in bulk, and had lost all appearance of sugar; it was of a viscid consistence, and looked like half melted glue; it was of a brown colour and musty smell. It seemed to experience no farther change by exposure to the atmosphere. Water, when boiled with it, was tinged of a light brown colour; the substance seemed to be rendered whiter, but it did not appear to be soluble in this fluid. Boiling alcohol rendered the substance harder and whiter, but no solution was effected. Caustic potash, when assisted by heat, dissolved it in moderate quantity; the solution was brown, soapy in its consistence, and frothed much when boiled; sulphuric acid threw down a white flaky precipitate from the solution. Nitric acid, when diluted with an equal bulk of water, soon began to act upon this substance; when heated to ebullition the substance was dissolved, with the disengagement, first of nitric vapour, afterwards of nitrous gas. The colour of the acid was much deepened, and its consistence was thickened; as it cooled, some flakes separated that resembled a concrete oil: the acid had acquired that peculiar odour which attends the action of nitric acid upon the muscular fibre. When potash was added in excess, the nitric solution acquired a deep orange colour, a gray precipitate was thrown down, and the fluid was left nearly transparent. When ammonia was added to the nitric solution, there was a very copious emission of white fumes, and the same change of colour as with potash.

These experiments were sufficient to show, that the saccharine extract had been converted into a substance very nearly resembling coagulated albumen. It is probable that the albumen must have existed in the first instance, mixed with the saccharine matter; but in what way the saccharine matter was decomposed, and the albumen coagulated, are points that I confess myself not able to determine.

Cases of Premature Labour artificially induced, in women with Distorted Pelvis: To which are subjoined some observations on this method of practice. By Samuel Merriman, M. D. Physician-Accoucheur to the Middlesex Hospital, and to the Westminster General Dispensary.

[From the Medico-Chirurgical Transactions, Vol. III.]

Mrs. Pope, 21 years of age, had been many hours in labour of her first child, under the care of a midwife, when my assistance was requested, on account of the difficulty of the case. When I arrived at the house, I was informed that the difficulty arose from the heads of two children being in the pelvis together; but upon an examination *per vaginam*, I discovered, that the projection of the sacrum had been mistaken by the midwife for the head of a second child. As the distortion of the pelvis was so great, it was evident, that the labour could not be terminated safely to the mother, unless the child's head were diminished. I resolved, therefore, to have recourse to the perforator; but as the child's head lay very high, and the os uteri was by no means sufficiently dilated, it was necessary to wait many hours, before I could proceed to the operation. At the end of eighteen hours, the os uteri being more dilated, and the head of the child being forced lower, so as to be more within the reach of the perforator, I made an aperture through the cranium, and extracted the parietal bones. Notwithstanding this diminution of the head, it required a considerable length of time, and very strong pains, to accomplish the extraction of the child. The mother recovered slowly, but at length perfectly, from the effects of this labour. This took place in September, 1804.

In August, 1807, I was again called to her assistance, when in labour at the full time; and was obliged to effectuate the delivery, by the same operation as before. I now very strongly recommended to her, to have her labour excited at seven months, in any future pregnancy; this offering the only chance of her having a live child; and my uncle, Dr. Merriman, who gave me his assistance, both upon this and the former occa-

sion of my attending her, joined with me in this recommendation.

In a few months she became pregnant again, and having fully completed the seventh month of gestation, and being in good health, I punctured the membranes, in the evening of September 26th, 1808, giving her afterwards a dose of laudanum. Labour pains came on, in about twenty-four hours after the operation, and I was called to her, early in the morning of the 28th, when I found the *nates* presenting. During the progress of the labour, the child was felt strong and lively; but before the head could be brought through the narrow part of the pelvis, the pressure on the navel string was so great, as entirely to stop the circulation, and thereby occasion the child's death.

In November, 1811, having, according to her reckoning, completed seven months and a fortnight of her fourth pregnancy, I punctured the membranes, on Thursday the 7th, in the evening. The waters were discharged in a very gradual manner; and on Tuesday the 12th, when labour pains came on, the feet were found to be the presenting parts. In consequence of this mal-presentation, the child perished from the compression of the navel string; for it was not possible to bring the head of the child through the narrow part of the pelvis, with sufficient expedition, to preserve its life.

After both these deliveries, the woman recovered remarkably well.

Mrs. North, 26 years of age, when advanced to the seventh month of her first pregnancy, met with a fall, or some other accident, which threw her into premature labour. I was informed, that upon this occasion, her delivery was effected without difficulty, and the child was born, with so much of life, as to cry faintly once or twice, before it expired.

In November, 1809, she fell into labour of her second child, at the full period of gestation. It was now for the first time discovered, that her pelvis was very much deformed, and that there was no possibility of the delivery being effected, without extraordinary assistance. The surgeon-accoucheur in attendance therefore requested, that there should be a con-

ul tation upon the measures to be adopted; and two physician-accoucheurs being joined in consultation with him, it was judged absolutely necessary, to have immediate recourse to the perforator. Accordingly the contents of the cranium were evacuated, but it was not till after a very long, hard labour, that the child could be brought into the world.

In her third pregnancy, she consulted with Dr. Denman, and myself, respecting the expediency of having premature labour brought on. As we both agreed in opinion, that this would give the only chance of her being delivered of a living child, it was determined to perform the operation. Having, as she believed, completed seven months and a fortnight of her pregnancy, and being in good health, I punctured the membranes, in the evening of Tuesday, February 13, 1811. The pains of labour began, in the night of Thursday the 15th, and I was sent for the next morning, when I had the mortification of finding the child's arm in the vagina.

Having apprized Dr. Denman of this untoward position of the child, he came immediately to see the patient, and to afford his advice and assistance. The os uteri appearing to be dilateable, I cautiously endeavoured to introduce my hand, for the purpose of turning the child; but the irritation this produced, threw the uterus into such strong action, that we thought it more prudent to desist, and to allow some more hours to pass over, before another attempt should be made. We expected, that, in the mean time, the parts would become more dilated, and as the child was small, that the feet would be forced by the pains, nearer to the os uteri, by which the operation of turning would be much facilitated.

At 8 o'clock in the evening, I made another attempt to turn the child, and accomplished it, without more difficulty than usually occurs in turning, in a contracted uterus, after the liquor amnii has been so many hours evacuated.

The feet, being brought into the vagina, were soon expelled by a pain, and almost immediately afterwards the hips protruded through the os externum. At this time, the pulsation in the funis was strong, and the child vigorous; but when the head became wedged in the narrow part of the pelvis, the

navel string was so much compressed, as soon to occasion the child's death. It was nearly half an hour before the head could be brought into the world, though the action of the uterus continued very strong, at intervals, during the whole time.

Immediately after delivery, the mother was seized with a very violent shivering fit, of more than an hour's duration. This was followed by so great a degree of fever and delirium, as to create considerable alarm for her safety; and I was, in consequence, induced to order for her, an active cathartic, preceded by a dose of calomel, in a very few hours after delivery. From these remedies, a copious evacuation of very offensive dark coloured fœces was procured, which gave her great relief. Indeed it is probable, that the early exhibition of these purgatives saved her life, for her fever ran very high, and she continued in a very dangerous state, for seven or eight days. At length however she perfectly recovered.

Mrs. Jenkins, 22 years of age, in labour of her first child, was attended by a very experienced midwife. Her labour began on the 15th of November, 1808. During the first twenty-four hours, the pains were frequent but slight, the liquor amnii was then evacuated spontaneously, and the pains became very strong and frequent, but the child's head made little progress, in descending into the pelvis. My assistance was therefore requested on the 17th in the evening. This woman had been extremely ricketty when a child, and the pelvis was in consequence very much deformed.

I believed it necessary to have recourse to the perforator without delay, and having removed one parietal bone, I left her under the care of the midwife, that the pains might force the head, thus diminished, lower into the pelvis. At the end of five or six hours, finding that no apparent progress was made in the labour, I endeavoured to extract the head, by the help of the blunt hook, but could not finish the delivery without great difficulty.

At the beginning of the present year (1812,) I learnt, that this poor woman was again pregnant; and being convinced by an examination, to which, at my request, she now again submitted, that it would be impossible to deliver her of a living

child at the full period of utero-gestation, I determined with her ready consent on performing the operation for inducing premature labour. Accordingly on Wednesday, March 4, 1812, I punctured the membranes in the evening, giving her afterwards a dose of tinct. opii. Labour pains came on, Monday, March 9th, and she was delivered of a live child on Tuesday, 10th, after about eighteen hours of very strong labour. The projection of the sacrum occupied so much space in the pelvis, as to produce a very marked depression of the right parietal bone, which did not recover its shape for four or five days.

At the time the operation was performed, Mrs. Jenkins reckoned that she had advanced about nine or ten days beyond the seventh month of gestation; so that the child, at its birth, must have been within a fortnight of eight months' growth. It is at present a thriving child; and there is great reason to believe, that it will be reared to maturity.

The practice of inducing premature labour, in cases of distorted pelvis, was first adopted in London, as is well known, about the year 1756;* when there was held a consultation of the most eminent practitioners of midwifery, "to consider of the moral rectitude of, and the advantages that might be derived from, the practice, which met with their general approbation."†

The morality of the practice, though it has been much questioned since this time, does not appear to have been doubted by these experienced practitioners. For the proposal was, that labour should be brought on at seven months, in those cases *only*, where it had been previously ascertained, that the pelvis was too much contracted, to allow a full sized fœtus to pass undiminished. By this operation, therefore, it

* The introduction of this method of practice has been erroneously attributed to Mr. Barlow, of Blackburn, in Lancashire, who published several cases of the issue of this practice, in 1800. It had been mentioned, by authors and lecturers on midwifery, long before his paper was published.

† Denman's Introduction to Midwifery, 4to. p. 395.

was proposed to give a chance to the mother of bearing a living child at seven months, which must of necessity be sacrificed to her safety at nine months. The idea was probably suggested, by the success which had occasionally attended the practice, recommended by Guillemeau and others, of rupturing the membranes at an early period, in cases of profuse uterine hæmorrhage, during pregnancy.

Objections to the morality of this practice, are much more frequent in the writings of foreign practitioners of midwifery, than in those of this country. Sue, Baudelocque, and Gardieu, all accoucheurs of great celebrity in France, decidedly object to it, not only because they think that the practice is contrary to the laws of nature, but because they say it is not to be depended upon, either for lessening the sufferings of the mother, or for saving the life of the child.* M. Gardieu tells us, that it lays the foundation for cancers and other dreadful diseases of the womb, and thinks that a woman had better run the risk of the Cesarean operation, or the division of the symphysis pubis, than submit to this operation.† The objections of these cele-

* Il y a déjà long temps que M. Petit a conseille et fait pratiquer l'accouchement prématuré dans le cas de difformité aux os du bassin. Il a meme proposé à ce sujet des moyens, dans le détail desquels ce n'est pas ici le lieu d'entrer, avec d'autant plus de raison, qu'il faudroit d'abord que les casuistes et les théologiens eussent décidé s'il est permis d'accélérer par art une fonction à laquelle la nature a assigné un terme fixe, et si on peut courir les risques de la vie incertaine de l'enfant, pour assurer celle de la mere. *Sue, Essais historiques sur l'Art des Accouchemens.* T. 1. p. 606.

L'accouchement prématuré obtenu par de semblables moyens, est toujours si peu favorable à l'enfant, qu'il nous semble qu'on ne devroit le permettre que dans ces cas d'hemorrhagies abondantes, qui ne laissent d'espoir de salut pour la femme que dans sa delivrance.

L'accouchement prématuré, si on le sollicitoit constamment au même terme, pourroit être aussi long, aussi laborieux, et tout aussi infructueux, même aussi impossible en quelque cas, que si l'on n'eut enterpris de délivrer la femme qu'au neuvieme mois. *Baudelocque, Traité des Accouchemens,* T. 2. p. 344.

† La femme ..... est atteinte d'une inflammation de la matrice, qui est une suite du travail contre nature, et des efforts necessaires pour ouvrir le col, qui ne se trouve pas disposé favorablement: si elle ne succombe pas aux accidens primitifs, elle est exposée par la suite aux squirres, aux ulceres, aux cancers de la matrice qui lui rende la vie à charge, et lui fe-

brated French accoucheurs, are plainly the result of a theoretical investigation of this method, for they acknowledge that they have had little or no experience of it.

The generality of writers admit the safety of the practice, as far as it regards the mother: perhaps the safety of the practice has been too generally admitted. Dr. Denman, in relating the particulars of a case which he attended with the late Dr. Savage, says, "on the following day, (after the evacuation of the liquor amnii,) she had a rigor, succeeded by heat and other symptoms of fever, which very much alarmed us for the event."* And a lady in the country upon whom this method was tried, was seized with severe shivering fits, followed by so much fever, as made her relations and medical attendants despair for some days of her recovery.† In the cases above related, one of the patients, Mrs. North, was for several days in a state of great peril. It may be alleged that the danger which she experienced, arose rather from the malposition of the child, requiring it to be turned in utero, than from the premature excitement of labour; but I am more inclined to attribute the severe shivering fit, which attacked her, to the latter cause, because shivering seems to be no unusual consequence of this operation.

Whether the death of the mother has ever occurred from this method of practice, I am unable to state positively. I have heard of three women who died in a few days after delivery thus artificially induced, and their deaths were attributed to the operation; but whether justly or not, I am not sufficiently acquainted with all the circumstances to judge. At all events, the method in question, if carefully conducted, cannot be more hazardous to the mother, perhaps is much less so, than the operation for lessening the head of the fœtus in utero,

roient préferer d'avoir respecté la grossesse, au risque de s'etre exposée aux dangers qu'auroient pu lui faire courir l'une des deux operations [L'operation Césarienne ou la section du pubis] qui devient nécessaire pour operer la delivrance dans ces rétrécissemens extrêmes. *Gardieu, Traite d'accouchemens*, T. iii. p. 18.

* Introduction to the Practice of Midwifery, 4to. p. 398.

† Communicated to me by the lady's sister.

and it is incomparably less perilous than the Cesarean operation, or the division of the symphysis pubis.

The best defence of the practice, however, is derived from the chance it affords of preserving the life of the child. In the greater number of instances, indeed, the child will either be dead born, or will be born with so little life as to expire in a few hours; but in many cases the child has been preserved.

Dr. Denman, in his Introduction to the Practice of Midwifery, reports *twelve* cases of this operation, and adds, that the majority of the children were born alive, but does not mention the exact proportion.

Mr. Barlow, a surgeon of great respectability and celebrity at Blackburn in Lancashire, published in the 8th volume of the "Medical Facts and Observations," *seventeen* cases. Six of the children were dead born, and *five* others, though born with life, died in a few hours; but *six* were born alive and capable of living.* In the 4th volume of the "London Medical Review and Magazine" for 1800, were reported *ten* cases of this operation, with which I became acquainted, from their having occurred in the practice of my uncle, Dr. Merriman. *Four* of these children were born living, and likely to live. At the commencement of this paper, I have detailed *one* successful, and *three* unsuccessful cases; and I have further to report, from the information of my friend, Mr. Marshall, surgeon, of Half-Moon Street, Piccadilly, *four* other cases, *one* of which was completely successful. Thus out of *forty-seven* instances of distorted pelvis, in which this operation had been practised, at least *nineteen* children had been born alive, and capable of living.

* Mr. Barlow has described the time when the operation should be performed, rather inaccurately. He says, "my method consists in exciting premature labour, *early in the seventh month* of pregnancy;" but he should have said *early in the eighth month*, that is *after the seventh month is completed. Early* in the seventh month, implies a time soon after the *sixth month is completed*, at which time there is no chance of the child's surviving, even though it should be born alive. That Mr. Barlow meant for the operation to be performed at seven complete months, is apparent from his afterwards saying, that "the child at *seven months* old has a sufficient chance of surviving the birth."

If it be considered, that in all these cases, the degree of distortion of the pelvis was so great, as to preclude the possibility of a fœtus at nine months of gestation passing alive, or undiminished, there is, I presume, sufficient proof that the practice is not only admissible, but that it ought to be recommended in such deplorable cases of distorted pelvis.

In most of the unsuccessful cases, the cause of the child's death was either not at all adverted to, or has not been made known; but this is a point that deserves attention. In many instances the death of the child seems to have taken place immediately after the severe rigors and fever, already alluded to, which attacked the mothers within a day or two after the liquor amnii was evacuated. It is possible that by proper management after the operation, these unfavourable symptoms may occasionally be averted. It appears likewise, that a preternatural presentation of the fœtus was a frequent cause of the child's death.

Dr. Denman does not take notice of any case of cross birth, among the twelve that he has recorded, but among Mr. Barlow's cases, there are at least two of preternatural presentation: in *two* of the cases communicated to me by Mr. Marshall, and in *four* of those which have occurred within my own knowledge, the presentations were likewise preternatural:—in all these cases, the children were dead born, probably from this cause. The proportion of preternatural presentations, according to this estimate, is about one in six.

It may be proper to enquire, whether preternatural presentations are equally frequent, in labours which occur spontaneously before the proper period? But the determination of this question requires more data than I at present possess. I have however now before me a list of *seventy-eight* labours occurring prematurely, either from the spontaneous action of the womb, or from accidental violence, and I find that among them, there were *seventeen* cases of preternatural presentation, viz.

7 of the nates,
5 of the feet,
3 of the arm,
1 of both hands,
1 of the funis,

but I should suspect that this gives a greater average of preternatural presentations, than commonly happens in premature labours occurring spontaneously.*

It has been a subject of enquiry, whether other circumstances, besides distortion of the pelvis, do not sometimes exist during pregnancy to make the inducement of premature labour expedient: as in cases of extreme weakness, or illness on the part of the mother, whose recovery seemed to be impossible if her gestation were suffered to continue; or in some of the more severe complaints peculiar to pregnancy, which

* Authors are much divided in opinion, respecting the proportion of preternatural presentations of the fœtus, at the full time of gestation. Smellie estimates the proportion at 1 in 100. Professor Camper, of Amsterdam, from the documents afforded by Messrs. Titzing and Beckman, reckons them at not more than 1 in 150; and Professor Jacobs, in his "Ecole practique des Accouchemens," published at Ghent, in 1785, states the average of preternatural presentations at not more than 1 in 160. On the contrary, Dr. Bland, who has made the calculation with great exactness, from the registers of the Westminster General Dispensary, (Philos. Trans. Vol. LXXI.) states the average of preternatural presentations at 1 in 30; there having occurred in 1897 labours,

36 presentations of the nates,
18 . . . . . of the feet,
8 . . . . . of the arms,
1 . . . . . of the funis.

If the average given by Dr. Bland, is what usually occurs, other authors cannot have been sufficiently accurate in their calculations: perhaps they only mean to speak of such cases of preternatural presentation as require extraordinary assistance. That they have omitted to enumerate many nates and feet presentations, is rendered probable from the following fact. Messrs. Titzing and Beckman, state the number of arm presentations in 18 years at 98, of the nates at 66, of the feet at 61. But it is well known, that nates and feet presentations are much more frequent than those of the arm; so that it cannot be doubted that many of the former must have been overlooked.

The exactness of Dr. Bland's calculations has been strongly confirmed, by the return of preternatural presentations, which occurred in the "Maison d'accouchemens," at Paris, during a period of nearly ten years, to May 31st, 1809. From this it appears, that upon an average preternatural presentations happened once in 27½ labours: of these

296 were presentations of the nates,
215 . . . . . of the feet,
and only 60 . . . . . of the superior extremities.

The number of labours from which the average is drawn, is 17,499.

were imagined to place the mother's life in imminent danger. An extension of the practice to such cases, has been strongly recommended, by a provincial surgeon of considerable eminence.

This gentleman says, "the preservation of the child is obviously the primary object for the bringing on of premature labour, in the distorted pelvis; yet if the safety of the mother, under particular circumstances without distortion, should require similar means to be employed, with safety to the child, surely no good reason can be assigned, why they ought not to be adopted."

If indeed it could be proved, that the safety of the mother required such a mode of practice, and that the safety of the child would not be implicated by the operation, the argument might have some weight, but it seems hasty to assume that such is the fact.

Even in the case which the author adduces in support of this recommendation, it may be doubted whether the safety of the mother required this method of procedure. She was indeed teased with a very severe cough, and her stomach was so irritable as to retain no food whatsoever, nor even opium in a solid form. She had taken absorbents, stomachics, bitters, aromatics, and opiates, without experiencing any relief; liniments, fomentations, and blisters, had been externally applied without benefit, and she was thought to be sinking into her grave, when it was proposed, as a last resource, to bring on premature labour, six weeks before the full time, and the patient was delivered of a living child, and ultimately recovered.

Men in extensive practice in midwifery must be aware, that the state of irritability of stomach here described, occasionally takes place at all stages of pregnancy; that however severe it may be, the complaint frequently ceases before the termination of the pregnancy, and that very small quantities of simple diet, containing but little nourishment, and nothing stimulating, will, under such circumstances, support the mother for an inconceivably long space of time, without destroying, or injuring the fœtus. It may likewise be remarked, that this state

of irritability of stomach is generally connected with more or less of inflammatory action, either in that viscus, or in some of the neighbouring parts; to relieve which, bleeding is perhaps, of all others, the most appropriate remedy: while cordials and aromatics serve but to aggravate the complaint. Now as the patient in question took remedies of the latter class, while the former appears to have been neglected, I think this case cannot be held up as a proof of the necessity of resorting to this expedient.

Writers of the best authority have remarked, that in acute and dangerous diseases, the spontaneous occurrence of abortion or premature labour adds greatly to the danger of the patient. This is a strong reason against exciting premature labour by art, during the continuance of such diseases. And though the practice of inducing premature labour in cases of distorted pelvis has rarely been attended with alarming consequences, yet I apprehend that I have mentioned enough to show, that there is no absolute freedom from hazard, even when the woman's health may be called good at the time of the operation; and how much the degree of hazard must be increased, when the patient is already in a state of great danger, need not be insisted upon.

As to the safety of the practice with regard to the child, that likewise seems to be assumed upon no very substantial grounds; at least if we may judge of the probability of saving the child, from what has happened in cases where distortion existed, we shall not have much encouragement, so far as the child is concerned, to extend the practice to such cases. If indeed the majority of the children had been preserved, something might be said in support of the operation; but it seems, that only *nineteen* children were born alive, and *capable of living*, out of *forty-seven* instances of the experiment.

These are indeed sufficient to justify the practice, when there is a moral certainty that the child's life must be inevitably lost, unless this mode be adopted; but there does not exist the same reason for resorting to it, when the child's life is not so certainly exposed to danger.

Upon the whole it appears to me, that the advantage either to mother or child from such an extension of this practice is

extremely problematical, while to admit of it would be opening a wide door to a dreadful abuse of the operation, by the ignorant, or the unprincipled. I must take leave therefore to express my humble opinion, that the inducement of premature labour by art ought to be strictly confined to those melancholy cases of distorted pelvis only, for which it was originally recommended.

In order to guard against any abuse of this method of practice, it seems expedient, that some fixed rules of conduct should be observed respecting its adoption. What these rules ought to be, I do not presume to determine, but shall content myself with subjoining such limitations and cautions as appear to me to be indispensable.

1. As the primary object is, to preserve the life of the child, the operation should never be undertaken, till *seven complete months* of utero-gestation have elapsed; and if the pelvis of the mother be not too much contracted to allow of it, the delay of another fortnight will give a greater chance to the child, of surviving the birth.

2. The practice should never be adopted *till experience has decidedly proved*, that the mother is incapable of bearing a full-grown fœtus alive.

3. It is sometimes necessary to have recourse to the perforator in a first labour, though there may be no considerable distortion of the pelvis; therefore the use of this instrument in a former labour is not *alone* to be considered as a justification of the practice.*

4. The operation ought not to be performed, where the patient is labouring under any dangerous disease.

* The propriety of inducing premature labour in any deformed woman can rarely, if ever, be determined upon, before the crotchet has been found indispensably necessary, and actually employed in a previous labour. Indeed, unless the contraction of the tube or canal of the pelvis be very considerable, and pretty accurately ascertained, it will scarcely be justifiable in any case to have recourse to this practice in all the subsequent pregnancies, until the woman has been delivered a second or third time by the crotchet. For it has happened in a very great number of instances, that a woman who has been delivered of her first child by the perforator and crotchet, has been afterwards delivered [naturally] of one or more living children at the full time.—Hull's Translation of Baudelocque's two Memoirs on the Cesarean section, p. 49.

5. If upon examination, before the operation is performed, it should be discovered, that the presentation is preternatural, it might be advisable to defer it for a few days, as it is possible, that a spontaneous alteration of the child's position may take place;* particularly if the presentation be of the superior extremities.

6. The utmost care should be taken, to guard against the attack of shivering and fever, which seems to be no unusual consequence of this attempt to induce uterine action, and has often proved destructive to the child, as well as alarming with regard to the mother. The peculiar circumstances under which the operation is performed, and the habit of body of the patient, will determine the accoucheur either to adopt a strictly antiphlogistic plan, or to exhibit opiates, or antispasmodics and tonics.

7. In order to give every possible chance for preserving the life of the child, it will be prudent to have a wet-nurse in readiness, that the child may have a plentiful supply of breast milk from the very hour of its birth.

Lastly, *a regard to his own character should determine the accoucheur, not to perform this operation, unless some other respectable practitioner has seen the patient, and has acknowledged that the operation is advisable.*

* Such alterations in the position of the fœtus in utero have been known to happen. Dr. Denman has known more than one instance of the presentation of the head being exchanged for the arm. Introd. to Midwifery, p. 450. Mr. Burns mentions a case where the shoulder was exchanged for the head, Princip. of Midwifery, p. 218. Dr. Merriman, senior, was about to puncture the membranes in a woman who had a distorted pelvis, when he distinctly felt the child's hand through the membranes, just within the os uteri; he therefore deferred the operation, and at the end of three or four days, examined again, and discovered that the hand was retracted and that the head presented. He now performed the operation, which was completely successful. Silber tells of a case in which the elbow presented, but in thirty-six hours, the head occupied its place. "Pater meus explorans per vaginam Fœminæ adpariendum vicinæ, cubitum fœtus prolapsum, et per integumenta caput in dextro matris latere invenit: nihilominus tamen post horas triginta sex, aquis effluxis caput situ naturali ingressum est."—Silber de viribus naturæ medicatricibus in situs fœtuum iniquos Tubingæ 1799.

Other such cases are to be met with in authors.

SELECTED REVIEWS.

A Treatise on the Management of Infants; containing the general Principles of their Domestic Treatment, with the History and Method of Cure of some of their most prevalent and formidable Diseases. By JOHN SYER, Surgeon. 8vo. pp. 295. London, 1812.

[From the London Medical Review, for January, 1812.]

FROM a statement given by the Directors of the British Lying-in Hospital, it appears that during nine years, about the middle of last century, of every fifteen children born in that hospital, one died; and that during the same space of time, at the latter end of the century, only one out of one hundred and fifteen. No further proof can be wanting of the extent to which the amount of mortality is influenced by treatment. The present bills of mortality show that of all who are born in London, one third die before they are two years old. Nothing more can surely be necessary to prove how much remains to be done towards the preservation of early life. This important object however, will not be much furthered by the mere multiplication of books. There is a feeling which is continually deluding us into the publication of what is known before. We discover in the progress of experience, that we have acquired information which we had not at the commencement of our practice, and are erroneously led to think that what is new to us must be new to the profession. Generally however, the fact is, that whilst we have been out-growing the knowledge of our youth, we have only grown up to that of our well informed cotemporaries. There is much reason to believe that physicians, even those of extensive practice, see little more of the diseases of children than what is sufficient to give them a thorough knowledge and a practical command of the truths ascertained by their predecessors. The same opportunities for observation will generally lead to the same re-

sults, and men of equal powers of mind, who enjoy the same quantity of experience of the same class of diseases, although they live at opposite ends of a century, will generally deduce the same opinions, as far at least as the main truths are concerned. We are thoroughly aware, that men will bring to the investigation, different degrees of previous knowledge, whether arising from the different states of science, or different degrees of industry or education; different descriptions of mind, different qualities of talent, and different degrees of interest in the subject; from all which it will happen, that one may extract many valuable discoveries which another had neglected. We only intend to urge, that the most effectual way to increase our knowledge, is to extend our notice to a larger field of observation; that the travellers who successively explore the same extent and district of a country, will produce similar accounts of the inhabitants and the scenery, although some who follow them over the same track, more deliberate and wandering in their movements, may digress to the right and the left, and bring home with them the description of some curious trait of character, some minute peculiarity of manner, or some fine feature of country, which had escaped the notice of their more cursory predecessors.

This treatise on the far from exhausted theme of infant preservation, which we now proceed to introduce to the attentive consideration of our readers, is divided into two parts; the first relating to the domestic management of healthy children, the second to some of their diseases. It does not profess to contain any important innovation into the usual practice of our best physicians, but seems to have been intended chiefly to teach the heads of families how to rear their children, and to detect and ward off the first approaches of disease. In the first chapter, Mr. Syer regulates the treatment of infants immediately after birth. Is it not too unqualified to state, that some time should be allowed to pass before the infant is separated from the mother, to allow of the gradual accommodation of the infant to the respiratory change of life, when it betrays signs of languor and imperfect animation. It frequently happens that the same uterine contractions which had expelled

the child, had separated the placenta; and in this case, a languid and half animated infant could receive through the chord nothing but impure blood, and consequently nothing but detriment. This is strongly, and we think justly urged by the professor of midwifery in the University of Edinburgh.

In the treatment of the inflammatory affections of infants, leeches are an indispensable but a very costly remedy. Among the children of the poor they are continually omitted, because of their expensiveness, and the consequent detriment is incalculable. The present race of leeches has surely degenerated from their ancestors. Now they almost always die after their first employment. We knew an old lady who had preserved for several years one of the leeches of former times, which was of a most formidable size and activity; she tended it with the greatest care, and was continually lending it to her friends. It had attended on so many patients, performed so many cures, and throve so well under the employment, that it was nick-named the doctor. The dearness and the feebleness of the leeches which are commonly procured, make the following contrivance of great value. "A very ingenious contrivance (says Mr. Syer) has been effected by Mr. Whitford, surgeon's instrument-maker, near Bartholomew's Hospital; the instrument is a scarificator, with a single blade, which is projected by a spring, on a similar principle nearly to the common scarificator, which is too clumsy and inapplicable to many parts. As soon as the puncture is made, a small exhausting syringe is applied to the part, and by increasing the number of punctures, the surgeon is at liberty to draw almost any quantity of blood he may choose." There is a further convenience in this instrument, that on applying the exhausting syringe to the wound inflicted by the leech, after it has ceased to bleed by the ordinary process, we may easily obtain a further discharge, and very rapidly, according to the exigency of the case. This instrument, if equal in efficacy to its apparent ingenuity, which we have reasons to doubt, must be not only a far cheaper but a far more efficacious remedy than leeches, which are continually disappointing the physician, to the serious injury of the patient.

The purulent ophthalmy of new-born infants, considered in the fourth chapter, has been supposed to arise from the mother being, at the time of delivery, affected with fluor albus, the discharge of which is supposed to come in contact with the infant's eyes in its passage through the vagina. The remedies here recommended are Goulard water, local bleeding, blisters, purges, and the camphorated water of Bates's pharmacopœia. The practice in this alarming and destructive disease, which was pursued by Mr. Saunders, and is still followed at the Infirmary for diseases of the eye, is said to differ very essentially from that recommended by Mr. Ware, which was found very inefficacious when applied to the extensive practice of that institution.

Inward fits, often announced by nurses to alarm the timid and inexperienced mother, are by Mr. Syer admitted into the catalogue of infantile diseases, and represented to consist of an involuntary or convulsive movement of the muscles of the eye and mouth, arising from flatulence, or other irritating cause in the stomach or upper bowels.

Of the two chapters in which the diseased state of the system during the progress of teething is described, the second is particularly worthy of attention. At this period of life, such a quick sympathy, such a telegraphic communication, subsists throughout the constitution, that irritation can scarcely go on in any part without rousing the whole into a state of alarm. Hence, when the teeth are making their way through the gums, there arises at various times an almost infinite diversity of symptoms. The infant commonly becomes fretful, the cheeks red and hot, the saliva runs from the mouth, a small vesicular, and sometimes an herpetic eruption appears about the face, or behind the ears; the skin is hot, the infant restless, the pulse quick, 130, the tongue white, the stools sour, sometimes thin and green, sometimes yellow and slimy, sometimes slate-coloured. Diarrhœa is very common. Sometimes there is cough and tightness of the breathing, arising from an affection of the mucous membrane of the lungs. The sleep is disturbed by startings, convulsions sometimes arise, and sometimes the action about the gums induces so great a

determination to the head, as to produce complete hydrocephalus internus; sometimes the glands in the neck become enlarged; sometimes a secretion from the urethra in both sexes; and sometimes fever remarkable for the suddenness, the severity, and the shortness of the paroxysms. One of the most important maxims to be kept in view, in observing and treating the diseases of teething, is that, although originally symptomatic of the irritation in the gum, many of them are capable of taking on an independent existence, assuming as great a degree of severity, and requiring the same treatment as if they had been idiopathic. This is most true and most important, as it applies to the symptomatic affections of the lungs and head. A cough and tightness of breathing, or an intense pain of the head, although they may appear to originate in an advancing tooth, must not be inferred to be harmless, but ought to be closely watched, for fear the one should go on to hydrocephalus and the other to pneumonia.

In the chapter on vaccine disease, Mr. Syer draws a contrast between it when received directly from the cow, and its mildness when imparted by inoculation; and proposes, that if the failures in its preventive efficacy should become more numerous, we should revert to the original source for communicating it. "In the vaccine distemper," says Mr. Syer, "it is a point of the first consequence to communicate the infection in a perfectly limpid state, and by no means to trust to the ichor after the ninth or tenth day. The characteristic appearances of the cow-pock cannot be anticipated, nor an equal degree of security against the subsequent influence of small-pox contagion; and a danger is incurred of producing abscess, ulceration, and a considerable degree of general irritation." Mr. Bryce, of Edinburgh, who has had great experience of the inoculation of this disease, and who has given us one of the best publications on this subject, is so far from entertaining these notions, that he employs the scab, into which the vesicle is at last converted, dissolved in water, for inoculation.*

* The security and certainty of the vaccine scab or crust, is fully ascertained in the United States.—EDITORS.

Mr. Syer very properly advises that the two punctures which are usually made, one in each arm, should both be made in one arm, so that friction of the arm affected in suckling the child, which is sometimes apt to induce painful consequences, may be prevented. Humboldt, in his Essay on New Spain, says that the men who are employed to take care of the cows on the mountains of Mexico, have been long known to be subject to a mild kind of small-pox, caught from the teats of cows, which renders them incapable of catching the more malignant form of this disease.

To each of the following subjects, viz. varicella, or chicken-pox, catarrh, with inflammation of the mucous membrane of the lungs, croup, hooping-cough, intestinal worms, the remittent fever, arising from a particular state of the digestive organs of children, Mr. Syer has devoted a chapter, but nothing occurs in them demanding particular notice. In the succeeding chapter, 17, rickets are described. The symptoms of this disease are well known; flabby flesh, large head, swollen belly, flattened ribs, sharp sternum, crooked legs, swelled joints, and curved spine. Examination after death shows the liver to be enlarged, but otherwise healthy in structure, the mesenteric glands to be tumefied, the abdomen tympanitic, the brain soft and moist, the bones vascular and resembling cartilage in structure. All the phenomena of this curious disease seem to originate in an imperfect performance of the process of assimilation. There is not merely a deficiency of the earthy portion of the bones; all the solids of the body are imperfectly formed.

Boyer asks, is the influx of phosphate of soda prevented by the obstruction of the mesenteric glands? Does the chyle contain less phosphate of lime? The former query will be sufficiently answered by referring to the phenomena of tabes mesenterica; because, if enlargement of these glands was capable of opposing the supply of earthy phosphate in a sufficient degree to produce softness of bone, tabes mesenterica would never occur without being complicated with rickets. It is probable, that whatever quantity of earth was contained in the blood, it would not be deposited in the bones, because those vessels in the osseous structure, which ought to perform the office of selection and deposition of the necessary parts from

the blood, are in this disease incapable of their natural functions. It was from a similar notion to that of Mr. Boyer, that the disease arose from a deficiency of earthy phosphate in the chyle, that M. Bonhomme instituted those experiments which he has printed in the eighteenth volume of the Annales de Chimie. He took several chickens of the same brood, and with the food of some of them he mingled phosphate of lime. When they had been fed in this way for a month they were all killed, and it was found, on examining their bones, that in those which had consumed most of the phosphate of lime, the process of ossification had advanced the furthest; hence he was induced to give the same substance in rickets. The efficacy of this practice is obviously however undecided. Frank says* that those were ricketty children which, in the fifteenth century, were believed to be the productions of a devil and a witch; and that it was thought right to drown them, or otherwise to destroy them. It is commonly believed the disease was never known until a few years before Glisson wrote about it, in 1650; how long it had been known before, it may be difficult to ascertain, but there is much reason to believe that it had been distinctly described under another name long before the period when Glisson wrote; for Zeviani della Kachetidi says that Hieronimus Reusnerus published a Dissertation in 1582, in which he described a disease, in his time very familiar in Holland, among children, of which the remarkable symptoms were wasting, crooked limbs, and flat sharp chests.

In the treatment of this disease, one of the most important things to be attended to is to expose the limbs to few causes of deformity during the softness of the bones, until they have been restored to their proper degree of firmness: for this purpose the child ought to be kept, for the principal part of the twenty-four hours, in the horizontal posture. Boyer advises a curious remedy: tickling so as to produce hearty laughing, which he says agitates all the viscera of the chest and abdomen, quickens the circulation, and gives a stimulus to the functions of the stomach and bowels. This is making a new use of the old advice, laugh and grow fat.

* Delect. Opusc. Med. tom. 5. p. 305.

We take leave of Mr. Syer, with a very favourable idea of his publication. It will be read with advantage by all, but it will be more particularly useful to those unprofessional persons who have children under their care, as it contains all the important information, more clearly and pleasingly communicated than in any other publication with which we are acquainted.

We wish for a compendious account of the symptoms, diagnosis, and treatment of all the diseases of children, in the same way as Dr. Pemberton has considered the diseases of the abdomen. The chief part of that gentleman's publication is old information, more briefly, clearly, and distinctly told than ever it had been before. It has sold so well, and is so often consulted, not because it discloses much of which we were ignorant before, but because it contains information of frequent use in an eminently convenient form. We are convinced such a work would succeed, for we have at present nothing of this description. Underwood is so mawkishly diffuse, and Dr. James Hamilton's Hints on the Diseases of Children, and the account which Mr. Burns has affixed to his System of Midwifery, are both, in the first place, connected with other matter, and in the second place are not sufficiently eminent for clearness and distinctness.

Reports on the Spotted or Petechial Fever, made to the Councillors of the Massachusett's Medical Society on the 21st of June 1810. Boston, 1810.

[From the London Medical Review, for January, 1812.]

America seems to be the country of epidemics as much as it is of woods, swamps, and savannahs. In the beginning of the year 1804, a very singular, alarming, and at its first appearance a very fatal disease broke out in Dana, a little town in the county of Worcester, and afterwards spread to Peterham, Barnes, Oakham, Rutland, Paxton, Hardwick, New Braintree, Brookfield, Spencer, Sturbridge, Winchendon, Athol, Gerry, Leicester, and Worcester, all in the same

county. It also extended itself to the counties of Cambridge, Middlesex, and Hampshire. The people of America have been frequently so hardly scourged by epidemic diseases, as to render it no subject of surprise that they were thrown into a state of considerable alarm at this apparent addition to the number of their relentless destroyers. A committee therefore was appointed by the Massachusett's Medical Society, who met on the 27th of March, 1810, drew up a circular letter, containing a number of queries relative to the symptoms, causes, treatment, and fatality of the disease, which was sent to all the medical men practising in the districts in which it had shown itself. From the various letters received in reply, the committee, who met again in June, drew up a report, consisting of the statements of their correspondents, together with their own comments on them. The latter is far from forming the most valuable part of the report.

This disease, which has obtained the name of the spotted or petechial fever, although it attracted public notice, and excited general alarm for the first time in 1810, is said to have appeared so long ago as 1806, at Mudford, in New England; to have been at that time described in the published papers of the Massachusett's Medical Society, and to have been since March, 1807, epidemic at Hartford and Windsor, in Connecticut, and in the counties of Hartford and Litchfield. "Most of the country in which this disease has appeared is inland, and very elevated; it abounds with hills and valleys, has many ponds, running streams, and fresh water rivers. In Cambridge port, the first place near the sea coast at which it was observed, it was confined for the most part to the land which was recently salt meadow, and which is now intersected by many foul ditches. In Boston, this disease, as also typhus, has occurred most frequently in those parts of the town exposed to the flats and water."* It began during the cold weather in the middle of January, and although it became much milder in its appearance, and much less fatal in its termination, had not ceased in June, when this Report was ordered to be published. The summer before the first irrup-

* See Reports.

tion of the disease was remarkably cold. The autumnal months were unusually warm and pleasant, a little snow fell early in November, and at the latter end there was a severe snow storm. The weather however, from this time to the middle of January, was very calm, warm, and foggy, with wind often from the south-west. In the middle of January there were a few cold days, but afterwards the weather was moderate, like spring, till the nineteenth, when there was a high wind, and a few days afterward some bitterly cold weather. From this time, through the remainder of January, the weather was very cold. During this month, little snow fell. February, at the beginning was cold, towards the end more mild, and there was very little either of rain or snow. In March it snowed seven days, and once very heavily, and there were several days of unmixed rain. It was a pleasant, but a cold month. April began with snow and rain; the remainder of the month was very dry. The weather was clear, mild, and pleaasnt; winds from the east; at the end there were some thunder and showers. The month of May was fair and clear, and, excepting a few showers, very dry; wind mostly south and west. During the latter part of the month, the weather was sultry, and the wind south and south south-west.

There appears to have been a remarkable difference in the fatality of this fever, when it first appeared, and the mildness which it afterwards assumed; for, at its breaking out, it proved fatal in a very large proportion of the cases, but subsequently it does not appear to have destroyed above one in fifty; according to some statements, not above one in a hundred. We will endeavour to give our readers as distinct a notion as we can of the symptoms of the disease, although it appears to us that we have not to thank the Reporters for rendering this task an easy one. The people who furnished them with the information were, unless we are much mistaken, not very remarkable for clearness of observation, and the Reporters have not tended to diminish this obscurity by the use which they have made of them. They appear never to have seen the disease themselves, and in order to give what they considered a full account of it, have mingled together, in their own way,

the information which they drew from various sources into a kind of olla podrida, a thick soup of various ingredients, which costs little, fills out, but is by no means light and easy of digestion.

The disease comes on suddenly. Almost all its symptoms indicate a remarkable affection of the sensorium and of the circulating organs; thus, a few hours after the attack, many of the patients became dimsighted, or even blind, benumbed, or paralytic, delirious or comatose; sometimes, although more rarely, they were affected by spasms and convulsions; they complain of pains of various descriptions, which is almost wholly confined to one side. The head is affected with pain, sometimes almost intolerably violent. The skin becomes chilly, dry, and pale; the eyes glassy, the nose contracted, the face livid, and the countenance expresses great distress and dejection of spirits; the body becomes cold, the breathing laborious, the pulse small and feeble, slow at first, and very frequent afterwards. About the region of the stomach there is a sense of oppression and fulness; often eructation, nausea, and vomiting. After these symptoms have continued a short time, they are succeeded by others of a different description: the pulse becomes full, the skin warm, the face flushed, the respiration short and difficult, the eye-lids swell, the eyes become staring, and the head labours with a throbbing pain, and the mind becomes delirious. When the fever terminated fatally, (and when this was the case it occurred within two days from the beginning of the attack,) the skin became pale and cold, the pulse quick, small, and irregular, the respiration very laborious, the flesh flabby, and petechiæ appeared over the whole body; the patient became drowsy, unable to swallow, and breathed quick and laboriously just before he died. When perspiration occurred, to which there was in many of the cases a great tendency, it was very profuse, and often fœtid. The common opinion was that the fever was not propagated by contagion; blacks were not exempt from it, but it seldom attacked the very young or the very old. After death, the body, particularly the face, neck, and shoulders, became covered by purple spots, and wherever the skin had been removed by

blisters, the surface was very dark and covered by blood. On removing the cranium, the dura mater was commonly observed to pour out blood, a serous fluid was found under the dura mater, the longitudinal sinus was full of blood, the veins of the pia mater were very turgid; between the tunica arachnoides and pia mater, there was an opake fluid, which sometimes had the distinct appearance of coagulable lymph. The hemispheres of the brain adhered along their upper edge. The cortical part of the cerebrum was unusually pale, the blood oozed from the medullary in more than common quantity. In the lateral ventricles there was more water than natural, and the plexus choroides was thick and hard, and seemed pale, as if from being soddened in the fluid of the ventricle. Of the heart, the outer tunic, the valves, and the inner lining, were thickened and altered by the deposition of lymph; both the right and the left ventricle, as well as the right cava, contained a little black blood, and even the aorta was gorged with the same fluid. The abdomen was very free from visible disease: the liver however, was unusually livid, the gall-bladder held some dark and ropy bile. All the muscular parts of the body were remarkable for a great lividness of colour. The bodies were never examined later than twenty-four hours after death, and were perfectly sweet.

The following case will afford our readers a more distinct notion of the symptoms and progress of the fever than what can be obtained from any general description. A middle-aged woman, of temperate habits and robust health, was seized with symptoms of the epidemic fever, which she had greatly dreaded, on the 25th of March. She was very anxious, agitated, and sighed much, and had slight rigors. On the right cheek there appeared some swelling, and a few pimples; the eyes lost their natural lustre, the skin became dry; the pulse preserved its natural velocity, but in the left wrist it was feebler than in the other. The left ankle, knee, elbow, and shoulder, were very painful, with that sensation of numbness and pricking popularly called pins and needles; the fingers felt numb, as if from frost. Two hours after the attack, the head was seized with a violent pain; stomach affected by fulness and

eructation. These were the symptoms during the first day. The feet were put in warm water, and the parts affected with pain were bathed with oil, ammoniated water, and tincture of Spanish fly. The pain and numbness being relieved by the friction with this liniment, she was put into a warmed bed, supplied with very hot brandy and water, and mint and pennyroyal tea, and felt better for them. After a short time however, the pain and numbness returned. Two tea-spoons full of camphorated spirits, and one of sulphuric æther, were now given her in hot water; a sinapism was put to the left foot, the side in which the pain and numbness resided, and a jug of boiling hot water to the right foot. The numb and painful parts were again bathed with the ammonia and tincture of Spanish fly. As the rigors continued, in spite of the warmth of the bed, a warming-pan full of coals was introduced between the blankets, and kept moving about; this relieved the rigors, and produced perspiration. About nine o'clock at night (the first day of the disease) the pain of the head became very violent, and it appeared as if delirium would supervene; she pulled off her cap with violence, and called for camphorated spirits to bathe her head with. Æther dropped on her forehead produced a grateful coolness, and relieved the head-ache. Hot billets of wood were introduced into the bed, to keep up heat and perspiration of the body, and whenever the pulse was sunk, the hot brandy and water was given her. About one o'clock in the morning the symptoms appeared mitigated, and perspiration was flowing. During the remainder of the night she was tolerable quiet; she continued to perspire; her pulse varied, but whenever it sunk it was readily restored by cordials. The pain remained in some degree. The tongue was dry in the middle, with moist edges. The next morning, that is, on the second day of the disease, a large blistering plaster was applied to the neck, and external heat and the cordials were ordered to be continued when they were necessary. At seven o'clock in the evening the blister in the neck had drawn, the head was relieved, and the mind was free from delirium. Wine whey, acidulated with lemon juice, was ordered. On the third day, in the morning, she was

much better; the perspiration had been kept up, the forehead felt painful and light, and the stomach oppressed with fulness. The same liquids were ordered to be continued, with the addition of beef broth. In the evening she seemed doing well; the pulse in the left wrist was fuller than that in the right; there was great tendency to perspiration; she had taken a draught of cyder, which had relieved the fulness of the stomach. There was an itching over the whole surface of the body. A laxative was ordered. On the morning of the fourth day, she was found to have passed a good night; her bowels had been opened; her pulse was natural; she was able to sit up most of the day. A numbness at the ends of the fingers, and general weakness, were the only remains of her disease. From this time she continued to recover. It is curious that she had been nursing at the time of her attack, and did not lose her milk.

In the treatment of this disease all evacuations appeared to be hurtful, excepting by the skin. The gentlest means of moving the bowels, as enemas, only were admissible. The best remedies were sudorifics, as opium and ipecacuanha, and the best practice to keep up perspiration and the action of the arterial system, by the warm bath, warm bed, thick blankets, bottles of hot water in the bed, sinapisms to the feet, and by giving the patient cordials, such as hot wine whey, wine and water hot, brandy and water, æther, opium. When the perspiration was very profuse, it was thought right to check it, by rubbing with hot dry flannel. In some cases, in which there was an uncommon degree of torpor and feebleness of arterial action, the use of spirit was carried to an uncommon extent, with the most encouraging benefit. Two pints of undiluted heated brandy have been given to one patient in twelve hours. In the lethargic state, what often appeared the most efficacious remedy, was fifty or even a hundred drops of laudanum, given every half hour, until it produced the desired effect. For pain of head, which was often very intense, and flushing of the face, and delirium, the most effectual means of relief was the application to the head of cold water, or snow, or ice, or æther, and a blister to the nape

of the neck. The incessant vomiting which sometimes occurred was relieved by blisters to the precordia. During the convalescence, the medicines employed were bark and Griffith's steel mixture.

Such is the account we have hitherto received of the epidemic called the spotted fever, which last year spread so extensively in the county of Worcester, and which excited so much alarm in the minds of the public. What has been its subsequent progress we have not learned. The prevailing opinion among the medical men was, that it was not contagious; and of the places where it appeared, there was only one, Cambridgeport, the peculiarities of whose situation gave any probability to the idea that it arose from the influence of marsh effluvia.

ORIGINAL PAPER.

Case of ruptured Uterus, with the appearances on dissection.

By Dr. Milton Antony, of Monticello, Jasper County, Georgia.

To the Editors of the Eclectic Repertory.

Gentlemen,

I have the satisfaction of recording and transmitting to you, a case of ruptured uterus, which, if, on account of the merits of the case simply related, or on account of any observation which may accompany it, you should deem worthy, you are welcome to admit to a place in your Repertory. The recording of rare cases, as well as those on which some theorising mind may be brought to anchor, and thereby develop, probably, the most lucid physiological theories, is a duty I recognize as being incumbent on all members of the faculty, with which I haste to comply.

A woman slave, the property of Mr. H. in this village, who had the character of being very deceptious, complained, on the 25th, 26th, and 27th of March, 1814, (after being somewhat miff'd by her mistress,) of pains in her hypogastric region, with an internal hardness, which, she told her associates, she could feel with her hand. Her pains were somewhat periodical, resembling labour pains, accompanied with a sense of weight and oppression about the seat of the uterus. Mrs. H. believed the woman was about to abort, but she most strenuously denied the charge of pregnancy. It was then the conclusion that she was deceptive, and no farther notice was taken of her case, although she continued complaining, sometimes on foot, and sometimes in bed.

On the evening of the 26th, she informed a woman with whom she associated, that she believed she had miscarried; that she had some show which induced in her this belief. On the morning of the 27th, however, she arose and attended to her business as usual, got breakfast, and in the course of the forenoon took her bed again, and made much complaint;

her mistress still believing her deceptive. Her mistress' husband being from home, she applied to her brother-in-law and family physician, Dr. S. The doctor attended the call. Mrs. H. informed him of the illness and the disposition of the woman, and of her professions of corporeal illness, and begged the doctor in the afternoon to step into the kitchen and examine her. The doctor went into the kitchen, and to his utter astonishment, he found the woman dead.

In compliance with the request of the family, and in gratification of my own desire, I attended, and made an investigation by the knife, into the cause of her death. I commenced the dissection by making crucial incisions into the abdomen: one in the direction of the linea alba, from the xiphoid cartilage to the os pubis, the other transversely from the left to the right iliac region, intersecting the former at a right angle, in the umbilical region. No sooner had I penetrated the cavity of the abdomen, which was considerably distended, than a large quantity of fluid blood made my incision its way of escape. After this, I removed large coagula of the same substance, amounting, in the whole, to between twelve and sixteen pounds of blood. Immediately on the removal of those coagula, I was presented with the chorion, which I found containing the fœtus, and liquor amnii. On removing this sack of liquor a little from its position against the walls of the abdomen over the pubis, I found the lacerated edges of the uterus. I then dissected around, so as to save the uterus, Fallopius' tubes, the ovaria, and part of the vagina, which preparation I have now preserved in a solution of nitre in common brandy. I inclose you a rough painting of this preparation, which will, at least, serve the purpose of making the case plain to every inspector, showing coarsely, though correctly, the true condition and position of the preparation, as I now have it.

This preparation, as it shows the callous portion of the uterus, must readily explain the cause of the rupture. I do not recollect to have seen a record of a similar case, although Baudelocque, from his expressions in his 1440th paragraph, seems to have acquaintance with them, so that I do not record it as perfectly novel in the annals of medicine, but as a rare case; a case

whereby physicians may be enabled to make correct prognostics, but more especially as being instrumental in the confirmation of a correct theory of parturition, or rather, of the true cause of the determination of the period for parturition to nine months from the time of conception. With Baudelocque I agree in considering "the determining cause of labour any thing which is capable of exciting the contractions of the uterus," such as the growth of the fœtus, and the accumulation of liquor in the cavity, "and that the true cause of labour at the full time, resides in the uterus." But these do not account for the determination of labour to the end of the ninth month. In accounting for the procrastination of the period of labour to the end of the ninth month, I cannot acquiesce with the learned accoucheur,* in supposing only, that the action of some fibres are counterbalanced by the resistance of others; although it is an indubitable fact, that the fibres which constringe the os tincæ, until the end of the ninth month, counterbalance the contraction of the parietes of the uterus; but the reason why that counterbalances this is, that the latter is not, until the end of the ninth month, thrown into such powerful contraction, as to be effective of labour. It is a law of the uterus, that its substance is so expansible as to admit of a certain degree of expansion without being irritated; an expansibility whereby it yields to the distending force within, to a certain extent. This extent is not, of itself, sufficient to accommodate the uterus to the growth of its contents, which accommodation is effected only by the assistance which the dilatation of the cervix gives, more than the simple elongation of its fibres from the distending cause within. So long as the cervix continues to widen, and the uterus to expand in their accustomed ratio, so long is the fœtus accommodated, and so long does the substance of the uterus remain free, (or nearly so,) of irritation. But so soon as the cervix has opened to the os tincæ, and the parietes of the part which formed the cervix, have become extended to the same degree as other parts, and the cavity become spherical, the usual relief which was afforded from

* See Dewees' edition, sect. 416.

this source ceases to be given. The effect of this cessation is, that an additional requisition is made of the parietes of the uterus, for a degree of expansion incompatible with its laws, and out of its power to grant. Consequently, the contents of the uterus enlarging in their accustomed ratio, and the fibres of the uterus not expanding in their accustomed ratio, the former becomes an irritating cause to the latter, and thus the (now) offending cause excites its own expulsion, by exciting those actions which constitute labour. Dr. Motherby's words nearly coincide with mine, differing only in his considering the neck of the uterus as containing a store of folded fibres which are given up to the uterus in proportion as expansion is wanted; which fibres had been closely stored away for this purpose; he considering the only assistance the neck gives, to be that of giving expansible fibres to the uterus as they are wanted. Whereas I consider, in addition to this, a relief given merely by the widening of the parietes of the neck, which were before very closely approximated, forming, in the commencement of pregnancy, a narrow appendix to one point of the triangular cavity in the body of the uterus, a collum equally narrow at its junction with the triangular cavity, as at the os tincæ. See fig. 3. pl. 5. Smellie's Tables. My idea will here be more easily conceived, by imagining the cavity of the uterus and neck to pass, during the progress of gestation, from the primitive triangular shape of that viscus, through that of a common receiver, (the way from the os tincæ to the triangular cavity, forming the neck of the receiver,) to a sphere. See Smellie, Pl. 5, fig. 3; pl. 6, fig. 1; pl. 7th, 8th, and 9th. By those plates it is very clear, that that part of the collum next the cavity of the uterus gradually widens, thereby giving space without actual extension or elongation of fibres, and thereby increasing the cavity of the uterus, as the legs of a plane angle, beginning at parallel lines, gradually widening, increase the capacity of that angle, till the angular point becomes a part of the plane.

I will now proceed to a statement of the cause of death in the case, of which I have preserved the preparation. The woman was about middle aged, and had had three

children previous to this pregnancy. Subsequent to the birth of her last child, she suffered much from some uterine complaint, probably arising from injuries done those parts by an officious, ignorant midwife, of whose ignorance, and pecuniary views, many of our best women are, from the custom of employing them in this country, the unfortunate victims.

The custom of the country, together with the influence of a false delicacy, of which this custom is the parent, influence women to employ midwives who are ignorant, officious, and even malicious, not aware of the fatality which attends their operations, till learned by a wretched experiment. This uterine disease, of which I have just spoken, was followed by scirrhosity or callosity, which induration affected the lower hemisphere of the uterus, together with the cervix uteri. This part being thus rendered inexpansible, determined the whole of the action of the expanding powers to the fundus uteri, which, making a by far greater requisition of this part than it was able to yield, it was necessarily lacerated. From the torn and ragged edges, immense effusions of blood were made, into the cavity of the abdomen, destroying life by the distension of the abdomen and pressure of the viscera in part, but principally by the disorganization which this tender viscus suffered, and the immense loss of blood. See the plate.

Having gone through the duty which I proposed, I close my communication. I am, Gentlemen, with sentiments of high respect,

Your obedient servant,

MILTON ANTONY.

May, 1814.

Explanation of the Plate.

1. The vaginal tube.
2. The right ovarium.
3. Membranes covering the left ovarium.
4. Left ligamentum rotundum.
5, 5. Ruptured edges of the fundus uteri.
6, 6, 6. Coagula of blood and lymph which adhered to the ruptured edges of the uterus.
7, 7, 7. Arterial and venous structure of the chorion.
8, 8, 8. The chorion containing a five months fœtus and liquor amnii.
9, 9, 9. Different folds of membrane, which are anterior to the os tincæ.
10, 10. Indurated portion of the uterus and cervix.
11. An Hydatid.
12. Cavity of the vagina as shown by a transverse section of that viscus one and an half inches below the os tincæ.

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ORIGINAL REVIEW.

The Surgical Works, or Statement of the Doctrine and Practice of P. J. Desault, Surgeon in chief of the Great Hospital of Humanity, at Paris. By XAVIER BICHAT, his pupil, Adjunct Physician in the same Hospital. Translated from the original, by EDWARD DARREL SMITH, M. D. Professor of Chemistry, &c. in the South Carolina College. Published by Thomas Dobson. Philadelphia, 1814. 2 vols. 8vo.

DESAULT was for many years eminent as a teacher of Surgery. The clearness of his descriptions, the precision with which he detailed the different steps of the operations, the adroitness he displayed in the manipulations, attracted many to hear his lectures. Towards the close of his life, he published the Journal of Surgery, and, in conjunction with his friend Chopart, he gave a treatise on the Diseases of the Urinary Passages. During the period in which he filled the station of surgeon in chief in the Hotel Dieu, he engaged in giving a course of clinical instruction. It was in this school, resorted to by numbers from the different provinces of France, and visited by many from other parts of the civilized world, that the doctrines and practice of Desault were first made known. Xavier Bichat, a favourite pupil, and an assiduous attendant on these instructions, collected the opinions of his master, delivered in these lectures, or dispersed through the journals; which he illustrated by cases drawn from the records preserved by the pupils who attended the practice of the Hotel Dieu. These were first published in 1799, about four years after the death of Desault. The work had a very rapid and extensive sale. In 1801, Bichat presented a new edition with corrections and additions, in two volumes octavo, which he dedicated to Corvisart, the friend of Desault, and well known by his treatise on the organic diseases of the heart. The first volume, containing memoirs on fractures of the bones, and on dislocations of the joints, with the mode of treatment practised by Desault, was translated and published by Dr. Caldwell of this city, in the year 1805. This translation underwent

a new edition in 1811. To use the language of Dr. Smith, of whose translation we have undertaken to offer some notice, "it has probably excited in all who have perused it a desire to be acquainted with the illustrious author's other labours, which are comprised in two more volumes." Dr. Smith informs us, that "his aim has been accuracy and fidelity in the rendering of the meaning rather than elegance of expression in the style;" and expresses the hope, "that the work will meet with the requisite indulgence from the candid reader."

There is a difficulty in translation, which those alone who have engaged in the task of rendering the meaning of an author into a different language, can justly appreciate. Every nation is in the use of terms, often extremely descriptive; for which the translator is at a loss to find corresponding ones in the language in which he writes. Besides which, he is apt insensibly to adopt the idiom of the language from which he translates. In works of science, provided information is conveyed, inaccuracies of style are rarely the objects of rigid criticism; and a generous public will readily extend the same indulgence to the labours of the translator.

The original has been in our possession more than twelve years. We have perused it with attention, consulted it often, and treasured up the maxims it contains. The opinions and practice of Desault, however, are of too high authority to require our commendation. Those who do not read the language he spoke, will gladly receive the lessons of that eminent surgeon in a language with which they are familiar, and to such the translation before us will prove an acceptable present.

Biographical Memoir of M. Sabatier.

[From the New Medical and Physical Journal, for January, 1813.]

M. SABATIER was the eldest son of Pierre Sabatier, a respectable member of the College and Academy of Surgery in Paris. The subject of this memoir was born in that city, on the 11th of October, 1732, and received the rudiments of classical education in the College des Quatre Nations, in the neighbourhood of which his father dwelt. As his years increased, he applied himself closely to the study of physics, and received lessons in geometry from the celebrated Abbe Caille; his leisure hours he employed in making himself master of the English and Italian languages, of music and drawing; accomplishments which procured him a favourable reception in society, and became the solace of his future life. At the age of seventeen he was made Master of Arts, and was qualified for any profession he should choose to embrace: disappointed by the sudden death of a maternal uncle, of the brilliant prospects in first setting out in life, which he had been led to anticipate, he devoted himself to the profession of surgery, and studied this science under Petit and Verdier; having also entered himself a pupil in the Hospital de la Charité, where his father had held the office of surgeon in chief previous to the appointment of Faget. His assiduity and application were remarkable, nor did he disdain, like the pupils of the present day, to attend to the most minute details and trifling offices of practical surgery. His diligence was well rewarded. The illness of his father, which happened some time after, called young Sabatier to supply his place among his patients, who kindly accepted the substitute; nor had they ever any reason to repent their confidence. The death of his father, before young Sabatier was legally authorised to succeed to his practice, threatened to plunge the family, consisting of four children, who depended upon the exercise of his profession for their support, into difficulties; but through the kindness of two aunts, who contributed to the expense, he presented him-

self for admission into the College of Surgeons, the leading members of which, who had witnessed his excellent conduct and diligent attendance, indulgently favoured him, and suffered his name to be enrolled amongst them before he had well attained his twentieth year. The subject of his dissertation, was the operation of bronchotomy, and the usual examinations were performed by him with credit and honour; he then gave a presage of the future distinction and celebrity he was destined to attain. His situation now, however, was an arduous one; scarcely had he completed the usual course of professional instruction, when he was placed, by the death of his father, at the head of the family, who had to depend upon him for protection and support. His ardent mind overcame all difficulties; in a few months he commenced a course of anatomical lectures, for the double purpose of procuring resources to maintain his family, and of perfecting himself in that science; for the best method of learning one's-self is, to instruct others; by this means also, a regular habit of connected study is acquired, and the art of forming clear and correct ideas.

His anatomical course afforded him many opportunities of making experiments, both direct and comparative, which served to throw light on the anatomy and pathology of the human frame. His table was well filled with subjects, and when, during his dissections, he met with any extraordinary appearance, he carefully recorded it, and made use of the fact, either to establish some general truth, or illustrate some point of doctrine. With a liberality of sentiment, which characterised him through life, he communicated his discoveries to those who were in search of similar facts. Happening one day to find among his father's papers, an account of his having met with an extra-uterine gestation in a woman, and proposed the operation of gastrotomy as the only resource, which being objected to by her family, the woman died, when the necessity of the operation was fully apparent on dissection, he hastened to Simon, then occupied in writing upon the Cæsarean operation, and communicated this case to him, who placed it in his work by the side of that of Cyprianus. Another

time he discovered in a woman, about 30 years old, subject to violent fits of convulsions and hiccupings, which no medicine could either prevent or allay, a tumour scarcely perceptible in the epigastrium. He reduced it, and the symptoms ceased; a suitable bandage prevented its recurrence, and the symptoms did not return. It was a hernia of the stomach, and Sabatier immediately sent the case to Pipelet, who was then writing his interesting memoir upon this subject.

Morand, surgeon in chief to the Hotel des Invalides, wished to have Sabatier near him, and prevailed upon him to remove his school of anatomy to the hotel; it was to be feared that the attachment of his pupils, and the confidence of the public, would scarcely follow him to the other extremity of the city; but as this had happened to Morand as well as to his predecessors, Sabatier was not dismayed; and it was here he displayed all the fecundity of his resources and the riches of his talents; his lectures had never before been attended by so many auditors, nor by auditors of such distinction. Foreigners sent to Paris by their sovereigns to acquire instruction, who were to return home and enlighten their respective countries, were the most constant in their attendance. When he could not speak their language, and they did not understand his, he gave his demonstrations in Latin. But the pupils whom Sharp, Douglas, Monro, and the two Hunters, sent to him, and those recommended to him by Moscati, Bertrand, and Cotunni, when they heard him speak English and Italian so fluently and so pure, could scarcely believe themselves out of their own country, but almost thought they were still beside their former masters. He had not, however, a good delivery; his voice was weak, and his utterance too rapid: but the order and precision of his ideas were such, and the animation of his manner so impressive, that he could not fail warmly to interest all his hearers.

He speedily rose into notice, and was frequently called into consultation with surgeons of the first eminence; at first he appeared as the representative of Morand, and was afterwards sought for on account of his own reputation: he well understood how to reconcile the deference due to his seniors, with

the duties required of him by conscience and the welfare of his patient; and frequently when he appeared to yield to the opinions of others, it was no other than his own which they had adopted. Morand had a niece, to whom, after three years, Sabatier became united, when he took up his residence in the Invalides, and left his paternal house to his mother, who resided in it till her death, in 1770, constantly experiencing the most tender cares from her affectionate son.

The time of Sabatier was divided between the study of anatomy and the practice of surgery, both within and without the hospital. Faithful to the precept of Cicero*, he never suffered a single day to pass without making extracts, or working at some memoir; and every month, every year, he reckoned not how many patients he had seen, or what they had brought him, but what progress he had made, and how much nearer to perfection he had arrived. Nothing could excuse in his eyes the conduct of those routine practitioners, so proud of their pretended experience, which, in fact, is all they possess, and with whom the acquisitions of science go for nothing; but when they disgraced themselves by the shameful traffic of secrets, the natural mildness of his character seemed to forsake him, and in his indignation he would have driven from the Temple these vile traders, who profaned the sanctity of it. What! secrets in the divine art of relieving our afflicted brethren! O! he would exclaim, with the eloquence of Burke or Fox, if torture were ever permitted, it should be inflicted on the man who conceals a discovery which would be useful to the state when in danger, or to suffering humanity in the agonies of pain. And on these occasions he would mention Raw, the famous Dutch lithotomist, who suffered the secret of his operation to descend with him into the grave, and died without the esteem or respect of any one; leaving his name to be execrated and despised by posterity.

Always having entertained a hope of entering into the Academy of Sciences, he dedicated to this body the fruit of his anatomical researches; at one time demonstrating, con-

* *Nulla dies sine litera.*

trary to the opinion of the celebrated Mickel, that the lymphatic vessels of the stomach opened into the thoracic duct, and not into the veins of that viscus; at another time ascertaining the power of absorption in this order of vessels, first discovered by Glisson; he also explained, from the distribution of the ophthalmic nerves, that dimness of sight, which Hippocrates had observed to follow a blow on the superciliary arch, and pointed out the practical application of this discovery in certain affections of the eye, as Valsalva had before done, who removed a spasmodic blindness, produced by a slight wound in the forehead, by changing the mode of action in the nerves of the part by friction.

The papers presented by M. Sabatier to the Academy of Sciences, previous to his becoming a member, were but the outlines of those memoirs he afterwards read to them, and which are printed in their collection. In 1766, he showed them two scirrhous ovaries, found in the body of a woman three months pregnant, from which circumstance he deduced consequences opposite to the generally received system of generation. In 1773, he read two memoirs, which were published in the 7th vol. of Memoires des Savans Etrangers, these are the 5th and 6th of those placed at the 3d vol. of his Treatise on Anatomy. Although there was not for some time any vacancy in the academy, M. Sabatier did not relax in his labours; that occasioned by Ferrein was, as an act of justice, given to M. Portal, who had been longer waiting for it, and had then done more to deserve it: but upon the death of Herissant and Morand, two years afterwards, his wishes were crowned with success, even beyond his hopes, for he both attained the place he so long desired and the honour of being appointed to it before Vicq-d'Azir, who, on this occasion, and perhaps on this occasion only, obtained but the second rank. So flattering a distinction animated the zeal of Sabatier in a still greater degree, and consoled him for some domestic uneasiness he then experienced.

Among the papers presented to the Academy of Sciences after his admission into that body, (for to enumerate them all would occupy too long a space,) were, in 1775, a case of one

of the vertebræ completely destroyed in a strong and robust man, who never experienced the least inconvenience from it, nor any illness, external or internal. In 1780, remarks upon the thoracic duct; he having in one subject found it filled with fluid blood, and with coagulated blood in two others, from which he inferred the existence of some bloodvessels opening into that canal. In 1783, a memoir upon some peculiarities in the spinal marrow and its investing membranes. In 1790, observations on the recti muscles of the abdomen. These different cases and memoirs were published in the collection of the Academy.

During the war which followed the revolution in France, he was ordered to join the army of the north, then before Mons, in quality of consulting surgeon; but he staid with them only a short time, the fatigue of this situation at his advanced age, then sixty, and with his weak frame, were too great for him, and he very soon obtained leave to retire from it; and was a short time after appointed with two colleagues, who if chosen by himself could not have acted more cordially with him, to inspect the military hospitals; this duty was performed in a manner which gave great satisfaction to all concerned.

On the first establishment of the National Institute he became one of its members, and no one more faithfully discharged the obligations this honour imposed; during the first year, he read to his class a memoir on the exhibition of large doses of opium, as practised by the English surgeons, in cases of locked jaw occasioned by wounds, the propriety of which practice he established, whilst he highly disapproved of the proposed operation of amputation in cases where the wound had been inflicted on one of the extremities. In a second memoir, he called the attention of surgeons to the fracture of the sternum, the occurrence of which, although a rare accident, had been sufficiently proved; and cautioned them to guard against the accidents which might arise from the pressure of the bone on an important vital organ.

M. Sabatier could not exist without occupying himself in study; passionately fond of his profession, he was anxious to contribute all in his power to advance and ennoble it. To the

end of his life, he was constant in his attendance at the sittings of the Institute and of the Society of Medicine, where he was an attentive observer of all that passed; whenever he spoke, he was listened to with the greatest respect, and the ideas and opinions which he uttered, were always forcible and full of truth. His emulation was generous and praise-worthy, never tinctured with the least envious detraction of the merits of others. Foreigners, who visited him for the purpose of paying their respects to one whose fame had reached their own country previous to their quitting it, always parted from him with regret, so adroitly did he flatter their national vanity, by praising their own works, or those of their countrymen, without even suffering them to speak of his.

Early in June, 1811, M. Sabatier was attacked with a fever, the first approach of which seriously alarmed his physicians, his friends, and family. At one time it was hoped, that science directed by able hands might triumph over the disease, even at his advanced age; vain hope! all the resources of art were ineffectual. The healing art, it may be said, is only a long apprenticeship to death; it continually recalls to the recollection, that all are mortal, that every thing under heaven perishes, every thing changes. By the exercise of this art we are taught humility, and to prepare ourselves for a change, which we know to be inevitable. Sabatier was not afraid of death; he waited for it with calm expectation, occasionally retaining some gleam of that hope which is the last feeling that dies in man. One day having recovered from a syncope of long continuance, he said to his afflicted son who was present, Profit, my son, by this lesson, and remember it is your father who teaches you to die. He exemplified the truth of the reply which he once made to a nobleman of high rank, who ironically demanded of him, if in his extensive anatomical researches he had by chance discovered the art of prolonging life? No, duke, said he to him, but I have in consequence of them, discovered a secret which, perhaps, your grace does not possess, it is that of not being afraid to die.

During the last stage of departing life, he was self collected, his mind retained its wonted energy, and his heart all its

sensibility. He thanked his wife and children for all their affectionate cares, and exhorted them to be henceforth but one family.* He departed this life on the 19th of July, 1811, having nearly completed his 79th year.

The Institute and Faculty of Medicine were each sitting at the time of his death, and heard of it with the most lively regret. Most of the members assisted at his funeral obsequies; a numerous crowd of students, of citizens of all ranks, surgeons of the guard, of the garrison, and of the different hospitals, several eminent physicians and apothecaries, all followed his remains to the grave, where military honours were paid to them by a detachment of soldiers who attended, and the grave closed amidst the lamentations of all descriptions of people.

* He had married a second wife, by whom he had two daughters.

MEDICAL AND PHILOSOPHICAL INTELLIGENCE.

[From the New Medical and Physical Journal, for January, 1813.]

Mr. Dufaud, Director of the Iron Works at Montalaire, near Creil, in a letter addressed to M. d'Arcet, writes as follows:—"I have undertaken, with the greatest pleasure, the experiments on sawing hot cast iron, that you recommended to me: I have followed your instructions; and my trials have been attended with the most complete success. My first trial was made with the support of a grate, 108 mil. [4·25 in.] thick. This piece of cast iron was heated in a forge fire with coal; and as soon as it had acquired a sufficient degree of *incandescence*, it was placed on an anvil, and I sawed it with a common carpenter's saw, without any difficulty, and without any injury to the saw, which I dipped immediately into cold water. The carpenter continued to work with the same saw, without having any occasion to repair it. My next experiment was with a pivot of 135 m. [5·3 in.] in diameter; but, afraid of its breaking if I cut it cold, an operation besides very tedious and uncertain, unless executed in a lathe, I had resolved to cast another, when the experiment I have just mentioned determined me to saw it. Having marked the place of section with red lead, I placed the pivot in a reverberatory furnace, and placed on an iron support, so that the two ends had equal bearings. In four minutes, with two saws, which I used and cooled alternately, the piece was cut off, to the great astonishment of my workmen, who found the saws unhurt. The same day I performed a still more difficult operation. I had an anvil, which I was about to cast afresh, because it was 41 m. [1·6 in.] too thick, so that it could not be placed in its bed. I marked the place of the saw kerf with red lead. The two cuts to be made were 217 m. [8·5 in.] long, by 189 m. [7·4 in.] high; and the thinness of the piece to be cut off required precision. This anvil was heated in a reverberatory furnace, in the same manner as the pivot; and, when sufficiently hot, two workmen took hold of it with a strong pair of tongs, and laid it on a block of cast iron. It was cut with much ease and pre-

cision, by the same saws that had been used in the preceding instance. In the course of these experiments I remarked, 1. That hot cast iron may be sawed as easily, and in the same space of time, as dry wood. 2. That, to diminish the resistance, the saw should be set fine. 3. That iron heated in a furnace, saws more easily than if heated in a forge; and the reason is simple: in a furnace it is heated equally throughout, while in a forge the part near the tewel is almost in a state of fusion, while that opposite to it is scarcely red-hot. 4. That the iron must not be made too hot; for, if its surface be too near a state of fusion, the saw will be clogged, and the process will not go on well. 5. That the saw should be moved very quickly, because then it will be less heated, make its way better, and the cut will be more clean and exact. 6. Lastly, that the iron should be so placed as to have a firm bearing every where except where the saw is to pass, otherwise it is liable to break before the cutting is finished.

FROM THE BOSTON PATRIOT.

Aurora Borealis.—On the evening of the 17th instant, a very brilliant Aurora Borealis rendered the northern part of the heavens luminous from the expiration of the crepusculum until past midnight.—The 15th and 16th were cold days, the wind generally from the north-east, east, and south-east, accompanied with thick fogs and considerable rain.

On the morning of the 17th, the wind was strong from the the south, and chilly, and continued to blow with violence during the day; but the thermometer rose gradually from about nine until four o'clock. The atmosphere had been quite clear—only a few pale clouds obscured the sky at intervals. After sunset, very dark clouds hung within five degrees of the north-eastern horizon, and less sable ones skirted the west—but nearly north, of about forty-five degrees elevation, a peculiar black appearance resembling a dense vapour; but that it was not a congregation of mere aqueous exhalations, is to be inferred from the circumstances, that the stars were visible

through its margins, and its colour continued uniformly the same.

From the edges of this dark curtain, a bright light emanated, similar to that which illuminates the confines of a cloud when the moon is about to emerge therefrom. Streaks of light rose from those clouds, which skirted the horizon, and extended to the zenith. These coruscations were momentary, and left the whole northern part of the heavens illuminated with a mellow light. The bases of these broad rays of light were from one to ten degrees in width, and terminated in lambent points, like the pyramidical flames which arise from an immense conflagration.

Sometimes the general aspect of the light was like that which precedes the appearance of the sun a few minutes before he rises.

The most luminous period of this phenomenon, was between eight and nine o'clock, when the trees, buildings, and every elevated object, cast a very perceptible shadow towards the south. So great was the diffusion of light, that the stars in the northern quarter of the hemisphere were not visible, except those of the first and second magnitude. The air was gradually chilled as the night advanced, and a gentle breeze from the north-west arose soon after sun-set.

The colour of the light was various, and continually changed—sometimes tinged with yellow, then red, but its general spectrum was a rose white.

The radii, which ascended from every part of the heavens, rose perpendicularly, and although the most splendid were lanched from the clouds, still scintillations continually flashed from those parts of the atmosphere which were perfectly clear. Some of the largest cones of light continued for two or three minutes, and gradually disappeared. Towards the latter part of the phenomenon, the clouds and light settled near the horizon, and looked like a bright undulating twilight after a thunder storm, which subsides just before sun-set, when the clouds have settled quite to the horizon. This most sublime spectacle has not been frequent since the revolution.

The first Aurora Borealis noticed by the philosophers in

Great Britain, happened on the 30th of January, 1560. Others occurred on the 7th of October, 1564, 14th and 15th of November, 1574, and 9th of August, 1703; but the most remarkable, until more modern times, was that of March the 6th, 1715, which not only caused vast consternation in the wondering spectators of the multitude, but excited great interest among the literati of England, and induced many of them to minutely describe its appearance—on the promulgation of which, the philosophers of Europe advanced various theories on the cause of this phenomenon.

Professor Cotes supposed it to arise from a thin nitro-sulphureous vapour, raised in the atmosphere considerably higher than the clouds, and that this vapour took fire. Chr. Maiens' solution was similar. Others imagined that vapours rarefied exceedingly by subterraneous fires, and tinged with sulphureous steams, might from thence be disposed to shine in the night. Doctor Halley has recourse to the *magnetic effluvia* of the earth, which he supposes to perform the same kind of circulation with regard to the earth, as any effluvia of any particular terrella does with respect to that.—M. de Mairan, in his philosophical treatise on the Aurora Borealis, endeavours to prove that it is owing to the *zodiacal light* on the atmosphere of the sun, spread on each side of it, along the zodiac, in the form of a pyramid.

Many have conjectured that it can be clearly accounted for on the principles of *electricity*, while others say it is the reflection of the sun's rays from the regions of ice which surround the north pole.

A COUNTRY SPECTATOR.

April 19th, 1814.

An Aurora Borealis was seen at Philadelphia at the same time, but not so brilliant nor varied in its appearances as that seen near Boston.

ROYAL SOCIETY.—The doctrine of animal heat, or rather the comparative heat of arterial and venous blood, has occupied the attention of Mr. JOHN DAVY, who communicated the result of his labours in this department of science to the society. The experiments of Crawford being performed at a time when the process and means of analysis were much less perfect than at present, it is necessary they should be repeated before they can be received as correct results in the actual state of our knowledge. Mr. Davy operated on the blood of sheep and lambs; and the detail of his experiments will be read with more pleasure, from the consideration that no animal experienced any pain from his researches. He began by depriving arterial and venous blood of fibrine, ascertaining their specific gravity, the former being 1047, and the latter 1050, placing them in glasses of equal dimensions, filling a similar glass with water raised to the same temperature, and observing their relative rate of cooling. In different experiments he found arterial blood 93 7-10, and venous 92, a result altogether incompatible with the theory of Crawford, but reconcileable with that of Dr. BLACK, or the opinion of Mr. BRODIE. The posterior portion of the brain he found from one to two degrees higher than the anterior, and both were as much lower than the rectum. The heat of the body generally diminishes in proportion to the distance from the heart. (This fact is not very consistent with the notion of the nerves occasioning animal heat, as its focus is not very replete with nerves.) In general the temperature of arterial blood was from 1 to 1 1-2 degrees higher than that of venous; only one degree was observed between the heat of the blood in the left and right ventricle of the heart. A newly-born child raised the thermometer to 96; after three days it rose to 99. Mr. Davy also made a variety of experiments on all parts of the body, with a view of ascertaining their relative heat; he avoided all theoretical speculations, but seemed somewhat inclined to the supposition of Dr. Black, respecting the origin of animal heat.—*Analectic Magazine.*

Dr. SPURZHEIM, the colleague of Dr. GALL in his lectures on *Craniology*, is now in London, and about to com-

mence a course of lectures on that novel subject. He purposes to publish a View of the Doctrines of Gall, and to illustrate the work with numerous engravings, made from drawings of the skulls of criminals, and others, in Germany and France. The subject merits notice, but its deductions appear to us to have been made with those over-sanguine feelings that usually characterize new discoveries. Dr. S. is an Austrian, and enjoys considerable reputation at Vienna, as a man of learning and science.—*Ibid.*

Dr. MITCHILL, professor of natural history in the college of physicians in New York, is engaged in preparing for publication a work on the natural history of the fishes of New York. This will include almost every variety of fish which frequent the American coast, or inhabit the rivers and streams of this continent. It is an untrodden field of investigation, and the learned professor can derive little assistance from the European ichthyologists. He must depend upon his own observations and industry. We have seen the first sheets of his book, and so far as he has proceeded, he has executed the work in the most satisfactory manner. Dr. Mitchill seems about to perform for the ichthyology of his country, what Wilson has done in its ornithology. It is to be regretted that the doctor is not enabled by public patronage to call in the aids of the arts; and, by accompanying his descriptions with accurate and highly finished engravings, to present the lover of the fine arts and of natural history with a proper companion to the splendid volumes of Wilson.—*Ibid.*

M. ORFILA, a young Spanish physician, has produced an extensive work upon *Poisons* considered as connected with Medicine and Jurisprudence. The first volume only has been presented to the National Institute of France, and treats of the poisons of mercury, of arsenic, of antimony, and of copper. The author has made many experiments, on the differences which are occasioned by the presence of aliments in the mode in which poisons are affected by re-agents, differences which may, in certain cases, conceal their properties, and prevent their detection: he has pointed out all the precautions neces-

sary to be taken by the jury, [*experts*], to give faithful information to justice, when consulted by her. He has especially endeavoured with the greatest care to investigate all the known means of arresting the deleterious effects of these poisons, and to discover new remedies when the old ones did not answer his expectations. Thus, according to M. Orfila, the albumen, or white of the egg, diluted in water, is the only antidote of corrosive sublimate; and common sugar in lumps is the antidote of verdegris; a pleasing result, to which theory alone would not have led.

M. Portal has published an important work, *on the Nature and Treatment of the Diseases of the Liver*, in which he has delivered the result of his extensive experience on the affections of an organ, whose great influence, both in health and disease, is well expressed in the motto chosen by the author: *Quanto magis ad sanitatem prodest, tanto et deterius in morbis afficitur.*

Analyse des Travaux, &c.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

July 5th, 1814.

At the annual meeting of the College held this day, pursuant to charter, the following officers were duly elected:

President.
Doctor Adam Kuhn.

Vice-President.
Doctor Thomas Parke.

Censors.
Doctor Caspar Wistar.
William Currie.
Samuel P. Griffitts.
Thomas T. Hewson.

Treasurer.
Doctor Thomas C. James.

Secretary.
Doctor Joseph Parrish.

PENNSYLVANIA HOSPITAL.

Patients admitted from April 24th, 1813, to April 23d, 1814,	594
Attended as out-patients,	1232
	1826

Of this number there have been	
Cured	1279
Relieved	116
Removed	45
Irregular	32
Infants born	9
Eloped, &c.	14
Died	161
Remaining under care	170
	1826

May 2d, 1814.

The following Contributors were elected Physicians, viz.

Dr. THOMAS PARKE,
PHILIP SYNG PHYSICK,
BENJAMIN SMITH BARTON,
JOHN SYNG DORSEY,
JOSEPH HARTSHORNE,
JOHN C. OTTO,
} Physicians for the House.

THOMAS C. JAMES, for the Lying-in department.

SAMUEL CALHOUN, for Out-Patients.

METEOROLOGICAL OBSERVATIONS.

State of the weather at Philadelphia, during the first six months of 1814.

JANUARY.

Thermometer—Lowest, at 8 A. M. 18, 31st day of the month.
Highest, at 3 P. M. 40, 17th.
Mean . . . . 31.

Winds—mostly westerly,—snow on the 10th and 18th.
A considerable proportion of clear weather, not very cold.

FEBRUARY.

Thermometer—Lowest, at 8 A. M. 19, 4th day of the month.
Highest, at 3 P. M. 49, 24th.
Mean, ... 34.

Winds westerly,—several falls of snow and rain,—skating on the river on the 5th,—very slippery on the 9th and 10th,—river clear of ice on the 12th,—23d, river rock and perch in market.

MARCH.

Thermometer—Lowest, at 8 A. M. 21, 1st day of the month.
Highest, at 3 P. M. 57, 31st.
Mean, ... 36.

Winds westerly,—an uncommonly cold March,—snow as late as the 22d,—navigation obstructed by ice on the 3d, and continued so until the 7th,—shad in market on the 28th.

APRIL.

Thermometer—Lowest, at 8 A. M. 40, 16th day of the month.
Highest, at 3 P. M. 66, 27th.
Mean, ... 50.

Winds variable, chiefly from NE. SW.,—frequent rains,—a great fresh in the river on the 2d,—swallows and martins appeared on the 3d,—frost in the nights of the 11th and 15th,—an Aurora Borealis on the night of the 17th, which was very brilliant near Boston.

MAY.

Thermometer—Lowest, at 8 A. M. 53, 3d day of the month
Highest, at 3 P. M. 78, 26th.
Mean, ... 61.

Winds, southerly most prevalent,—several rains, with thunder and lightning, on the 19th, 21st, and 27th.,—great drought at Charleston, South Carolina.

JUNE.

Thermometer—Lowest, at 8 A. M. 58, 7th and 8th days of the month.

Highest, at 3 P. M. 78, 29th.

Mean, ... 68.

Winds—easterly winds prevalent for the first three weeks; then northerly and westerly for the most part, to the end of the month. A severe thunder storm in the city on the 18th, which struck several ships in the harbour, and some houses—one boy was killed;—for 8 or 10 days previous much rain, often very heavy; then dry and pleasant to the end of the month. A prospect of a good harvest for hay, grain, and fruit. On the 3d inst. a violent tornado at Kaskaskias in the Illinois Territory. On the 4th, a severe storm, accompanied with thunder, lightning, and hail stones, about twenty miles from Louisville, Kentucky, commencing at the mouth of Salt river, and laying every thing prostrate for about eight miles in a south-westerly direction. The Boston papers mention much damage done to vegetation, by frost, on the 23d inst., in Massachusetts and New Hampshire, particularly on the seaboard.

The measles appeared about the middle of January, in the northern part of the city, and continue till this time, though evidently declining. They have been of a mild character. Pneumonic complaints frequent in March. Several cases of typhus during the cold weather: some of them of a malignant character. No small pox. Vaccination has been generally practised, especially among the poorer classes of the community.

LIST OF RECENT FOREIGN PUBLICATIONS.

MEDICINE.

An Appendix to an Inquiry into the Present State of Mecal Surgery. By the late Thomas Kirkland, M. D. Taken from his MSS.; with a Preface, Introduction, &c. By James Kirkland, surgeon apothecary to the Tower. 8vo.

Outlines of the Anatomy of the Human Body in its Sound and Diseased State. By Alexander Monro, Jun. M. D. F. R. S. Ed. 4 vols. 8vo.

A Treatise on the Diseases and Organic Lesions of the Heart. By J. N. Corvissart, M. D. Translated from the French by C. H. Hebb, Esq. 8vo.

Tracts on the Gout. By T. Sutton, M. D. 8vo.

Cases of two extraordinary Polypi removed from the Nose. By Thomas Whately.

A Practical Synopsis of Cutaneous Diseases, according to the arrangement of Dr. Willan. By Thomas Bateman, M. D. F. L. S. 8vo.

Essay on the Utility of Bloodletting in Fever. By Thomas Mills. 8vo.

A Treatise on the Remittent Fever of Infants. By J. M. Coley. 8vo.

Medical Histories and Reflections. By John Ferriar, M. D. Vol. IV. 8vo.

Observations on the Use and Abuse of Cold and Warm Sea-Bathing. By John Gibney, M. D.

An Essay on the Influence of Tropical Diseases. By James Johnson, Esq.

An Inquiry into the Laws of Animal Life: being an Analysis of the Principles of Medical Science, with a view to obtain more satisfactory Explanations of the Phenomena that present themselves in Health and Disease. To which is prefixed, a general outline of the Organs and Functions of the Human body. By J. R. Park, M. B. of Jesus College, Cambridge. 8vo.

Engravings from Specimens of Morbid Parts, preserved in the author's collection, now in Windmill-street, and selected from the Divisions inscribed Urethra, Vesica, Ren Morbosa et Lasa. By Charles Bell, F. R. S. Ed. &c. Folio.

A Familiar Treatise on Cutaneous Diseases. By J. Wilson.

The Philosophy of Medicine. By Robert John Thornton. 2 vols. 8vo.

Natural History.

The Transactions of the Linnæan Society of London, Vol. XI. Part I. 4to.

An Essay on the Philosophy, Study, and Use of Natural History. By Charles Fothergill.

A Dictionary of Botanical Terms, for the use of Students in Botany. By James Lee. 8vo.

A Precursor to an Expose on Forest Trees and Timber. By Captain Laymans. 8vo.

A General account of the Hunterian Museum, Glasgow. By Capt. J. Laskey. 8vo.

Researches about Atmospheric Phenomena. By Thomas Foster, F. L. S. 8vo.

An Account of Experiments and Instruments depending on the Relations of Air to Heat and Moisture. By John Leslie, F. R. S. E. 8vo.

A Treatise on Diamonds and Precious Stones. By John Mawe. 8vo.

An Introduction to Geology. By Robert Bakewell. 8vo.

RECENT AMERICAN PUBLICATIONS.

The Medical Works of E. Miller, M. D., late professor of the Practice of Physic, &c., collected and accompanied with a biographical sketch of the author. By Samuel Miller, D. D.

Catalogus Plantarum Americæ Septentrionalis huc usque cognitarum indigenarum et cicurum: or, A Catalogue of the hitherto Known, Native, and Naturalized Plants of North America. Arranged according to the Sexual System of Linnæus. By Henry Muhlenberg, D. D. Minister at Lancaster, in Pennsylvania. 8vo. Lancaster, 1813.

Dr. Bigelow, of Boston, has just published, "*Flora Bostoniensis*," being a Scientific Catalogue and Description of the Native Plants of the country adjacent to Boston. 1 vol. 8vo.

Thomas Dobson has just republished Experimental Researches concerning the Philosophy of Permanent Colours; and the best means of producing them by Dyeing, Calico Printing, &c. By Edward Bancroft, M. D. F. R. S.

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